

Plot Date: 15-OCT-2025 1:55:04 PM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std Pen_v0905.pen PlotScale: 1:1
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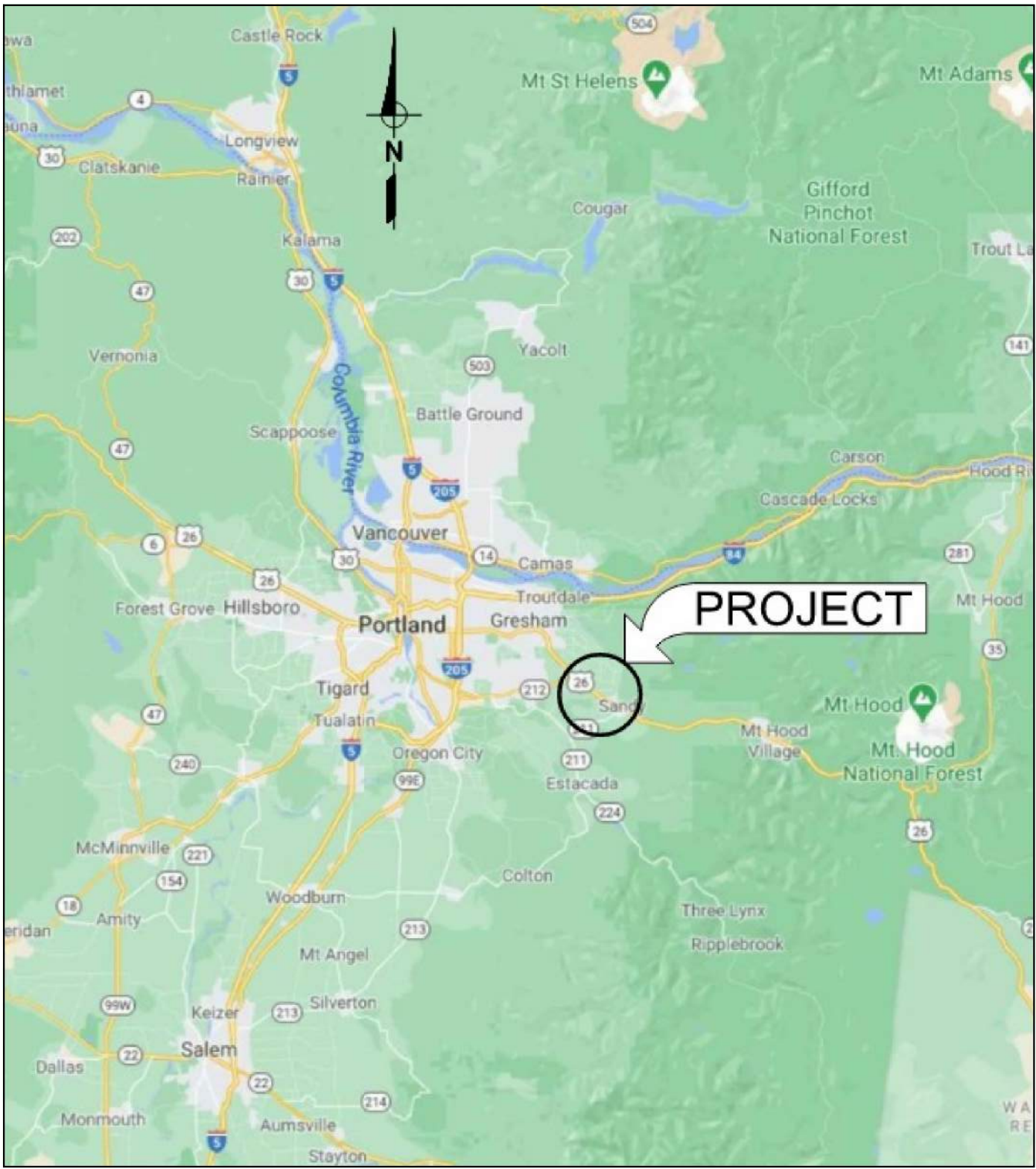


CITY OF SANDY, OREGON

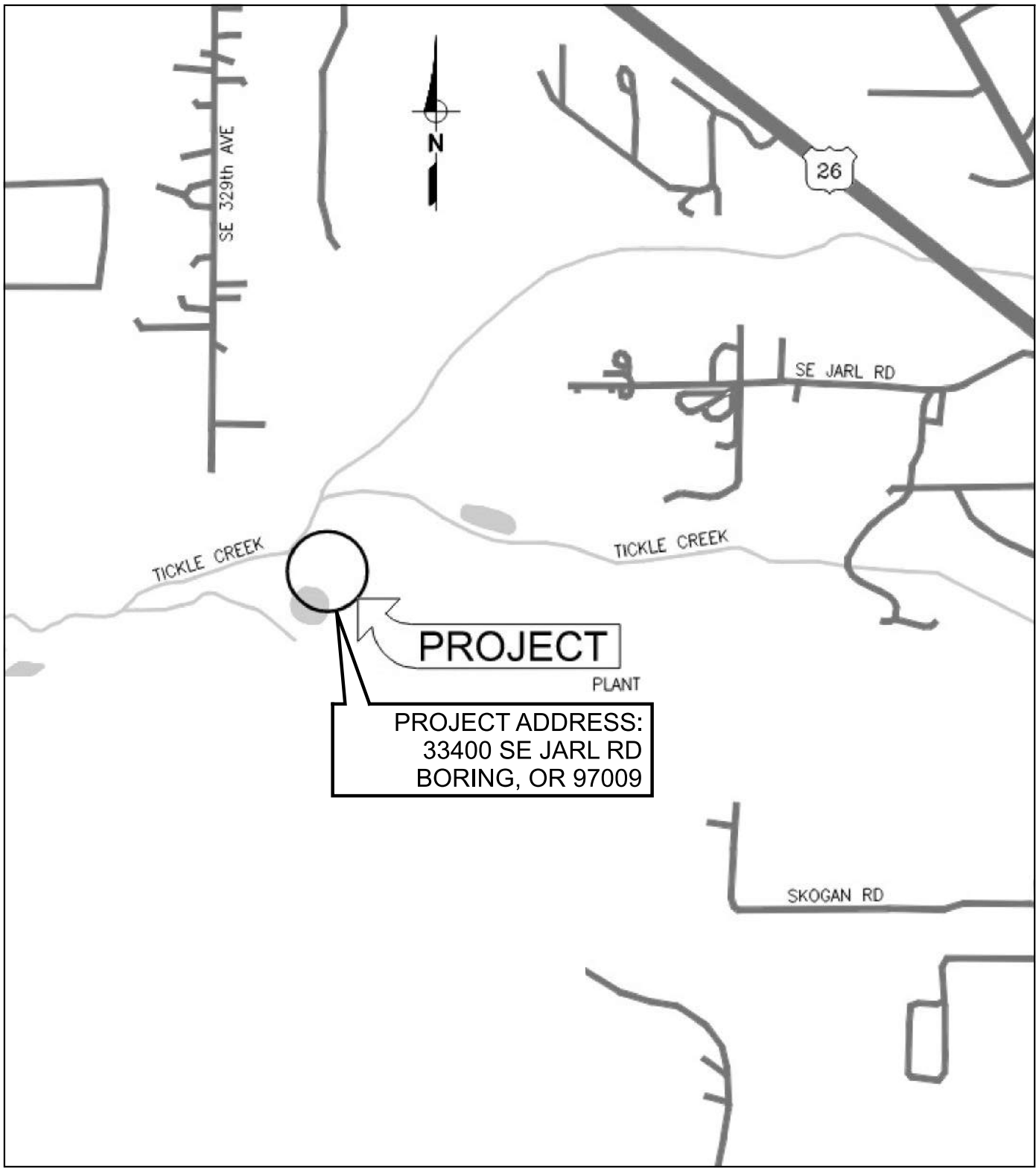
WWTP UV IMPROVEMENTS

OCTOBER 2025

VOLUME 1 OF 1



VICINITY MAP



LOCATION MAP



JOB NO. 202880
DRAWING NO. G01
SHEET NO. 1 OF 58

Plot Date: 15-OCT-2025 1:54:42 PM
User: svcPW
Model: Layout1
ColorTable: gshade.ctb
DesignScript: Carollo_Sig_Pen_v0905.pen
PlotScale: 1:1
LAST SAVED BY: lveloz

	1	2	3	4	5	6	7	8	9	10	11	12	13
A	SHEET NO.	DRAWING NO.	DESCRIPTION										
			(G) - GENERAL										
	1	G01	COVER SHEET										
	2	G02	DRAWING INDEX										
	3	G03	GENERAL NOTES, LEGEND & SYMBOLS										
	4	G04	ABBREVIATIONS										
	5	G05	DESIGN CRITERIA										
	6	G06	PROCESS FLOW DIAGRAM										
	7	G07	HYDRAULIC PROFILE										
			(D) - DEMOLITION										
B	8	D01	EFFLUENT FILTRATION & DISINFECTION OVERALL PLAN										
	9	D02	EFFLUENT FILTRATION & DISINFECTION SITE PHOTOS										
	10	DS01	EFFLUENT FILTRATION & DISINFECTION LOWER PLAN										
	11	DS02	EFFLUENT FILTRATION & DISINFECTION FLOOR PLAN										
	12	DS03	EFFLUENT FILTRATION & DISINFECTION SECTION 1										
	13	DS04	EFFLUENT FILTRATION & DISINFECTION SECTION 2										
	14	DS05	EFFLUENT FILTRATION & DISINFECTION ELEC BLDG FLOOR PLAN										
	15	DM01	EFFLUENT FILTRATION & DISINFECTION PLAN										
	16	DM02	EFFLUENT FILTRATION & DISINFECTION SECTIONS										
			(S) - STRUCTURAL										
C	17	GS01	GENERAL NOTES										
	18	S01	EFFLUENT FILTRATION & DISINFECTION LOWER PLAN										
	19	S02	EFFLUENT FILTRATION & DISINFECTION FLOOR PLAN										
	20	S03	EFFLUENT FILTRATION & DISINFECTION CANOPY PLAN										
	21	S04	EFFLUENT FILTRATION & DISINFECTION SECTIONS AND DETAILS 1										
	22	S05	EFFLUENT FILTRATION & DISINFECTION SECTIONS AND DETAILS 2										
	23	S06	EFFLUENT FILTRATION & DISINFECTION SECTIONS AND DETAILS 3										
	24	S07	EFFLUENT FILTRATION & DISINFECTION ELEC BLDG FLOOR PLAN										
	25	S08	EFFLUENT FILTRATION & DISINFECTION ELEC BLDG SECTIONS AND DETAILS 1										
			(M) - MECHANICAL										
D	26	GM01	GENERAL LEGEND AND SYMBOLS										
	27	M01	EFFLUENT FILTRATION & DISINFECTION PLAN										
	28	M02	EFFLUENT FILTRATION & DISINFECTION SECTIONS										
			(H) - HVAC										
	29	GH01	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS										
	30	H01	FILTRATION/DISINFECTION BASIN ELECTRICAL ROOM PLAN & EQUIPMENT SCHEDULE										
			(E) - ELECTRICAL										
	31	GE01	ELECTRICAL LEGENDS										
	32	GE02	ELECTRICAL ABBREVIATIONS										
	33	E01	ELECTRICAL SITE PLAN										
34	E02	PARTIAL MCC-B DEMO ELEVATION											
35	E03	PARTIAL MCC-B DEMO ONE-LINE DIAGRAM											
36	E04	PARTIAL MCC-B ELEVATION											
37	E05	PARTIAL MCC-B ONE-LINE DIAGRAM											
38	E06	PANELBOARD SCHEDULES											
39	E07	ELECTRICAL ROOM PLAN - DEMO											
40	E08	ELECTRICAL ROOM PLAN - MODIFICATION											
41	E09	DISINFECTION AREA PLAN - DEMO											
42	E10	EFFLUENT FILTRATION AND DISINFECTION POWER PLAN											
		(N) - INSTRUMENTATION											
E	43	GN01	SYMBOLS AND ABBREVIATIONS 1										
	44	GN02	SYMBOLS AND ABBREVIATIONS 2										
	45	GN03	SYMBOLS AND ABBREVIATIONS 3										
	46	GN04	SYMBOLS AND ABBREVIATIONS 4										
	47	GN05	SAMPLE LOOP DRAWING										
	48	N06	UV REACTOR P&ID										
	49	N07	NETWORK BLOCK DIAGRAM MODIFICATIONS										
			(T) - TYPICAL DETAILS										
	50	TS01	STRUCTURAL 1										
	51	TS02	STRUCTURAL 2										
52	TS03	STRUCTURAL 3											
53	TS04	STRUCTURAL 4											
54	TS05	STRUCTURAL 5											
55	TM01	MECHANICAL 1											
56	TH01	HVAC 1											
57	TE01	ELECTRICAL 1											
58	TE02	ELECTRICAL 2											
F													
G													

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GENERAL NOTES

1.

FOLLOWING NOTES ARE GENERAL AND APPLY TO ALL SHEETS OF THESE CONTRACT DOCUMENTS AS IF THEY WERE WRITTEN IN THEIR ENTIRETY ON EACH SHEET.

2.

CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.

3.

UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS SHALL APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS.

4.

WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK. DETAILS SHALL BE IN THE SAME AS FOR OTHER SIMILAR WORK.

5.

CONTRACTOR SHALL COMPLY WITH LOCAL CONSTRUCTION STORM WATER DISCHARGE REGULATIONS AND REQUIREMENTS.

6.

PRIOR TO EXCAVATION FOR NEW STRUCTURES, ELECTRICAL CONDUIT, FABRICATION OF NEW PIPING AND/OR OTHER PROPOSED UTILITIES, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING PIPING AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL TEMPORARILY RELOCATE CONFLICTING EXISTING UTILITIES AT TIE-IN/CONNECTION LOCATIONS AND REINSTALL THEM AS REQUIRED TO ELIMINATE THE CONFLICT AT NO ADDITIONAL COST TO THE OWNER.

7.

EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS OBTAINED FROM AVAILABLE RECORDS OR ELECTRONIC FILES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR FACILITIES AND UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, SIZES, MATERIAL TYPES, AND ELEVATIONS SHOWN AROUND OR NEAR AREAS OF NEW CONSTRUCTION PRIOR TO START OF CONSTRUCTION.

8.

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT FROM DAMAGE EXISTING FACILITIES AND UTILITIES SHOWN OR NOT SHOWN THAT ARE TO REMAIN IN PLACE. ALL FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ORIGINAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.

9.

CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING PIPE, EQUIPMENT, ETC. AS REQUIRED AND SHALL PROVIDE ALL FITTINGS, ADAPTERS, AND APPURTENANCES REQUIRED TO MAKE THE CONNECTIONS. PROVIDE ALL SUPPORTS REQUIRED FOR A RIGIDLY SUPPORTED COMPLETE AND WORKING SYSTEM.

10.

ADJUST ALL VALVE BOXES, VAULTS, PULL BOXES, AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR DIRECTED. MANHOLES IN OPEN FIELDS SHALL BE SET TWELVE INCHES ABOVE FINISHED GRADE AND VAULTS SHALL BE SIX INCHES ABOVE FINISHED GRADE.

11.

THE CONTRACTOR SHALL CONTACT THE PROPER UTILITY REPRESENTATIVE AS FOLLOWS FOR QUESTIONS OR COORDINATION OF CONSTRUCTION RELATED TO EXISTING UTILITIES.

STATE/REGION/MUNICIPALITY SPECIFIC: 1-800-227-2600

12.

CONTRACTOR SHALL REROUTE THE EXISTING PIPING IF REQUIRED TO MISS THE PROPOSED STRUCTURES. THE EXISTING PIPE SHALL REMAIN IN SERVICE UNTIL NEW PIPING IS READY TO BE PLACED INTO SERVICE. DOWNTIME SHALL BE A MAXIMUM OF 2 HOURS, UNLESS SPECIFIED OR SHOWN OTHERWISE.

13.

THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS IN THE VICINITY OF ANY OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL ABIDE BY THE NATIONAL ELECTRIC CODE AND ANY REQUIREMENT BY THE OWNER OF THE ELECTRIC LINES.

14.

PROVIDE ALL SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES, PIPES AND FACILITIES.

15.

CONTRACTOR SHALL VERIFY LOCATION OF ALL ARCHITECTURAL, MECHANICAL, AND ELECTRICAL ITEMS BEFORE PLACING ANY STRUCTURAL STEEL OR CONCRETE. ALSO, STRUCTURAL DIMENSIONS AND OPENINGS CONTROLLED BY ARCHITECTURAL, MECHANICAL, OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

16.

MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES, AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS, THAT ARE REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

17.

EXISTING ELEVATIONS SHOWN ON DRAWINGS WERE BASED ON WEST YOST GMP3 DRAWINGS FROM 2022. FIELD VERIFY ALL ELEVATIONS SHOWN ON DRAWINGS.

LINE WORK

CONSTRUCTION

NEW

EXISTING

FENCE

GUARDRAIL

FUTURE CONSTRUCTION

CENTER LINE

HIDDEN LINE

REMOVE AND/OR ABANDON

GATE

MATCH LINE

MATCH LINE SEE DWG ##X##

SYMBOLS

BRACKET

BREAK LINE

PIPE BREAK PLAN VIEW

PIPE BREAK CROSS SECTION

SCALE

NORTH ARROW/PLANT NORTH

EQUIPMENT/DEVICE TAG AND NUMBER

PIPE TAG

PIPE CONTINUATION (SINGLE LINE)

KEY TAG

KEY NOTE

REVISION DELTA

EXISTING ELEVATION

ELEVATION

XXX-XX-XXXX (E) or (F)
EQUIPMENT
(E) = EXISTING EQUIPMENT
(F) = FUTURE EQUIPMENT

PIPE SIZE
X" XXX (E) or (F)
SIZE FLOW STREAM
(E) = EXISTING FLOW STREAM
(F) = FUTURE FLOW STREAM

0 50' 100' 200'

30°

TRUE

NORTH

PLANT

Call before you Dig

Avoid cutting underground utility lines. it's costly.

Call 811

OR

1-800-227-2600

DETAIL REFERENCES

PLAN

VIEW DESCRIPTION, AS NECESSARY

VIEW DESCRIPTION

FILE: FILE

PLAN NOT REFERENCED

SECTION CUT

VIEW

= SHOWN ON SAME DRAWING ##X## = SEE INDICATED DRAWING

SECTION OR DETAIL VIEW TITLE W/ REFERENCE

ALPHA = SECTION NUMERIC = DETAIL

DESCRIPTION

SCALE: SCALE

FILE: FILE

DRAWING CUT ORIGATION

DETAIL OR ENLARGED PLAN CALL OUT

ALPHA = ENLARGED PLAN NUMERIC = DETAIL

SEE INDICATED DRAWING

DRAWING REFERENCE

##X##

AREA DESIGNATOR (WHEN APPLICABLE)

DISCIPLINE DESIGNATOR

SHEET NUMBER

TYPICAL DETAIL REFERENCE

TYPICAL DETAIL #

(TYP)

(TYP) - INDICATES THE TYPICAL DETAIL IS USED IN MULTIPLE LOCATIONS WITHIN THE DRAWING

EXTERIOR ELEVATION VIEWS

A

##X##

SEE INDICATED DRAWING

PHOTO LOCATION

#

##X##

ARROW INDICATES POINT OF VIEW

SEE INDICATED DRAWING

GRID BUBBLE

A

1

TYPICAL DETAIL NUMBER

LINE 3

LINE 1

LINE 2

TYPICAL DETAIL TITLE

MOD

MODIFICATION NOTE
S = STANDARD
J = JOB SPECIFIC
R = REVISED
N = NOTE TO TYPICAL DETAIL USER

SHT # OF #

SHEETS IN DETAIL

VER DATE

DATE CREATED (REVISED)

HATCH PATTERNS

AGGREGATE BASE COURSE (ABC)

GRAVEL

ALUMINUM

GRATING

ASPHALT PAVING

LANDSCAPING

BEDROCK

RUBBER

BRICK OR BLOCK

SAND OR GROUT

BRONZE, BRASS, OR COPPER

EXISTING/ UNDISTURBED SOIL

CAST IRON OR FIBERGLASS

STRUCTURAL FILL OR BACKFILL

CLSM

STEEL

CONCRETE (ALL CLASSES)

TREAD PLATE

DRAIN ROCK

WOOD

DESIGNED KW

DRAWN CE

CHECKED TEK

DATE

OCTOBER 2025

REGISTERED PROFESSIONAL ENGINEER

99940

OREGON

JULY 12, 2022

TYLER E. KANE

EXPIRES: 06/30/27

Digitally signed by Tyler E. Kane

Corollo Engineers, Inc.

Date: 2025.10.15 13:58:52 -0700

carollo

SANDY OREGON

CITY OF SANDY

WWTP UV IMPROVEMENTS

GENERAL

NOTES, LEGEND, AND SYMBOLS

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202880

DRAWING NO. G03

SHEET NO. 3 OF 58

PROJECT NO. 202880-100000

FILE NAME: 202880_G03.dgn

[illegible]

Plot Date: 15-OCT-2025 1:55:07 PM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: lveloz

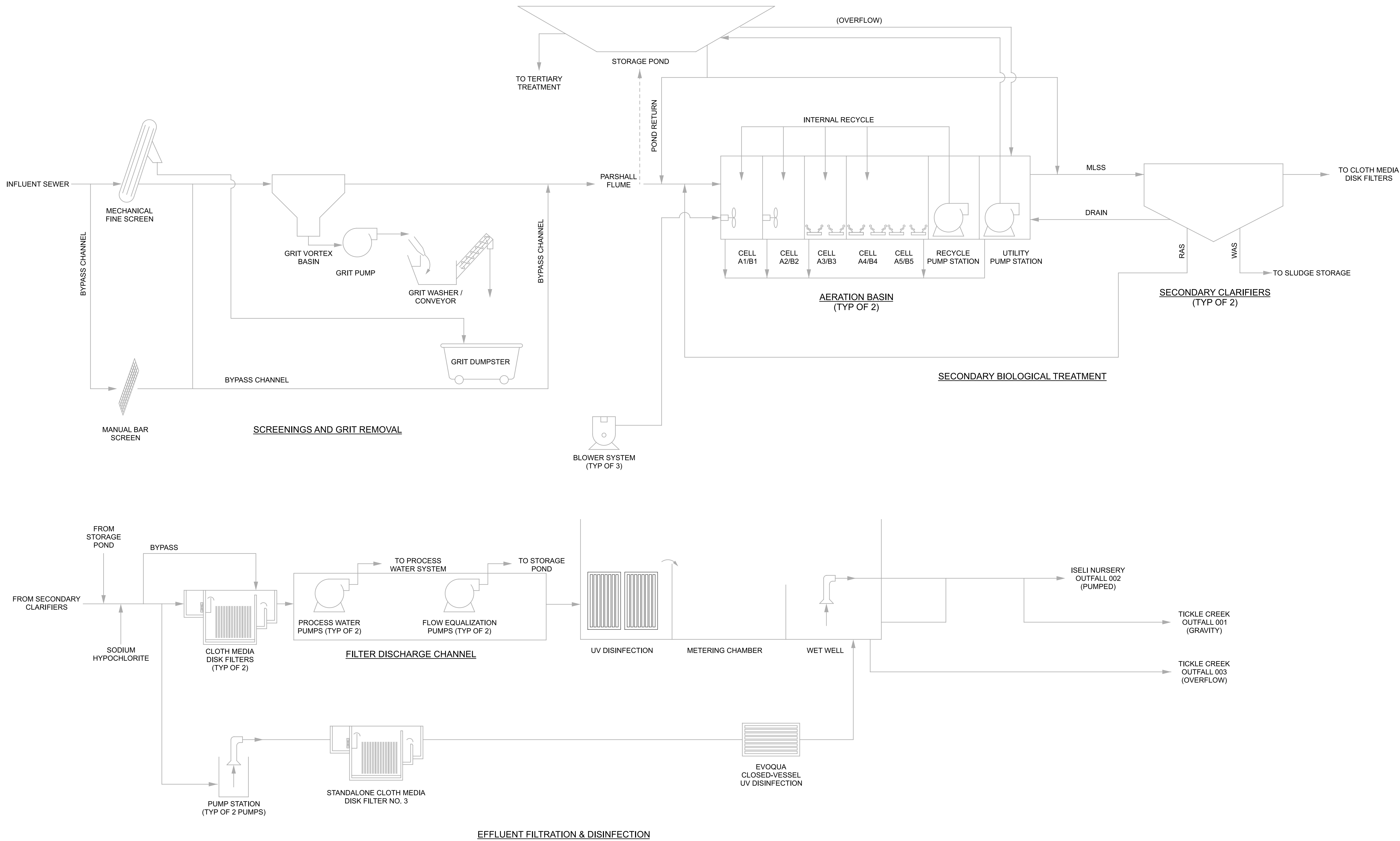
1	2	3	4	5	6	7	8	9	10	11	12	13
# KEY NOTES: 1. INFORMATION PROVIDED BY OTHERS. 2. THE DESIGN MS2 REDUCTION EQUIVALENT DOSE (RED) IS THE REQUIRED DOSE FOR EACH MODE OF OPERATION TO ACHIEVE THE DISINFECTION REQUIREMENTS. 3. ALL DUTY BANKS AT 100 PERCENT POWER. UV SYSTEM ONLY.												

Plot Date: 16-OCT-2025 1:55:05 PM

User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: lveloz



REV	DATE	BY	DESCRIPTION

DESIGNED
KW
DRAWN
LZV
CHECKED
TEK
DATE
OCTOBER 2025



Digitally signed by Tyler E. Kane
Carollo Engineers, Inc.
Date: 2025.10.15 13:55:30 -0700



CITY OF SANDY
WWTP UV IMPROVEMENTS
GENERAL
PROCESS FLOW DIAGRAM

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

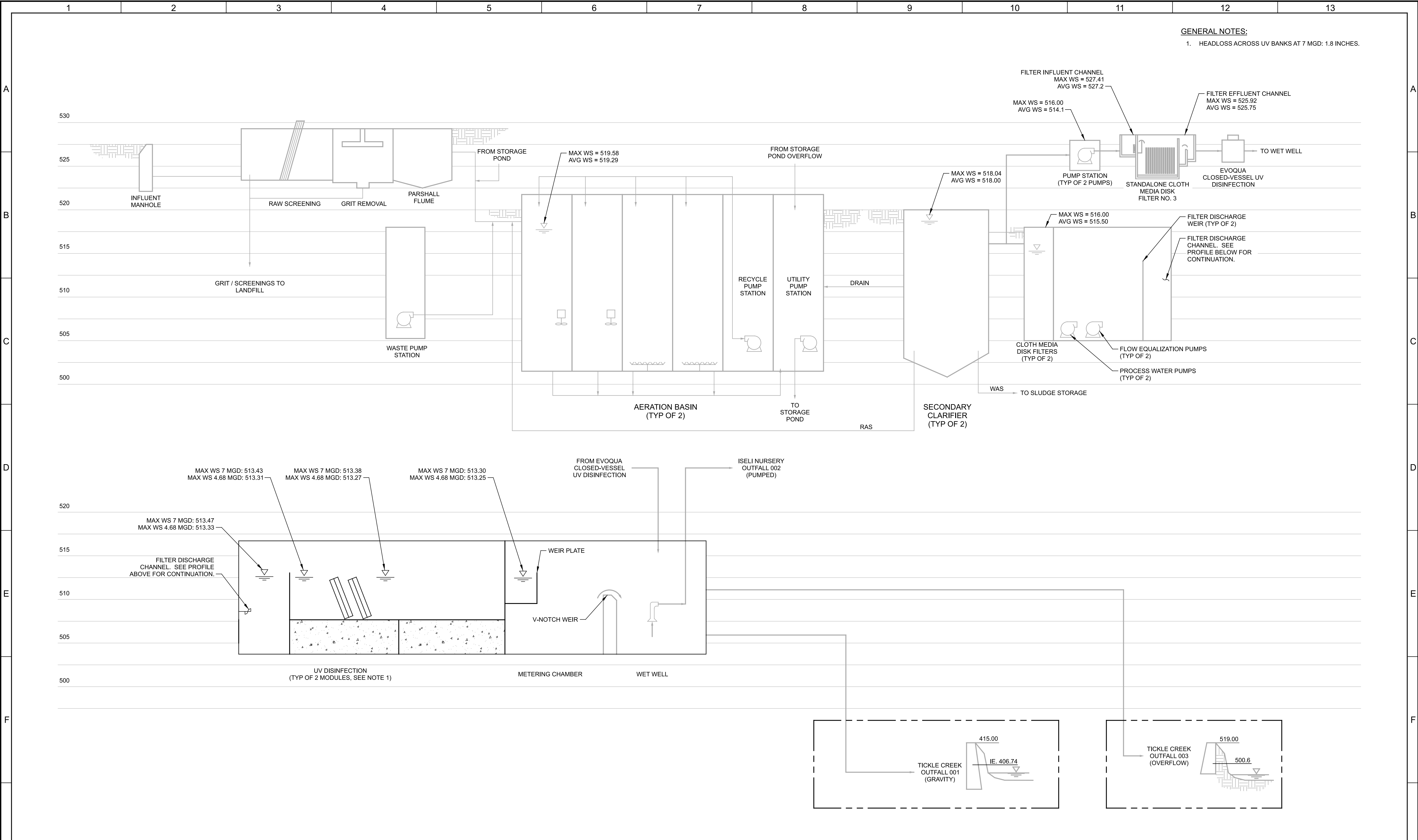
JOB NO.
202880
DRAWING NO.
G06
SHEET NO.
6 OF 58

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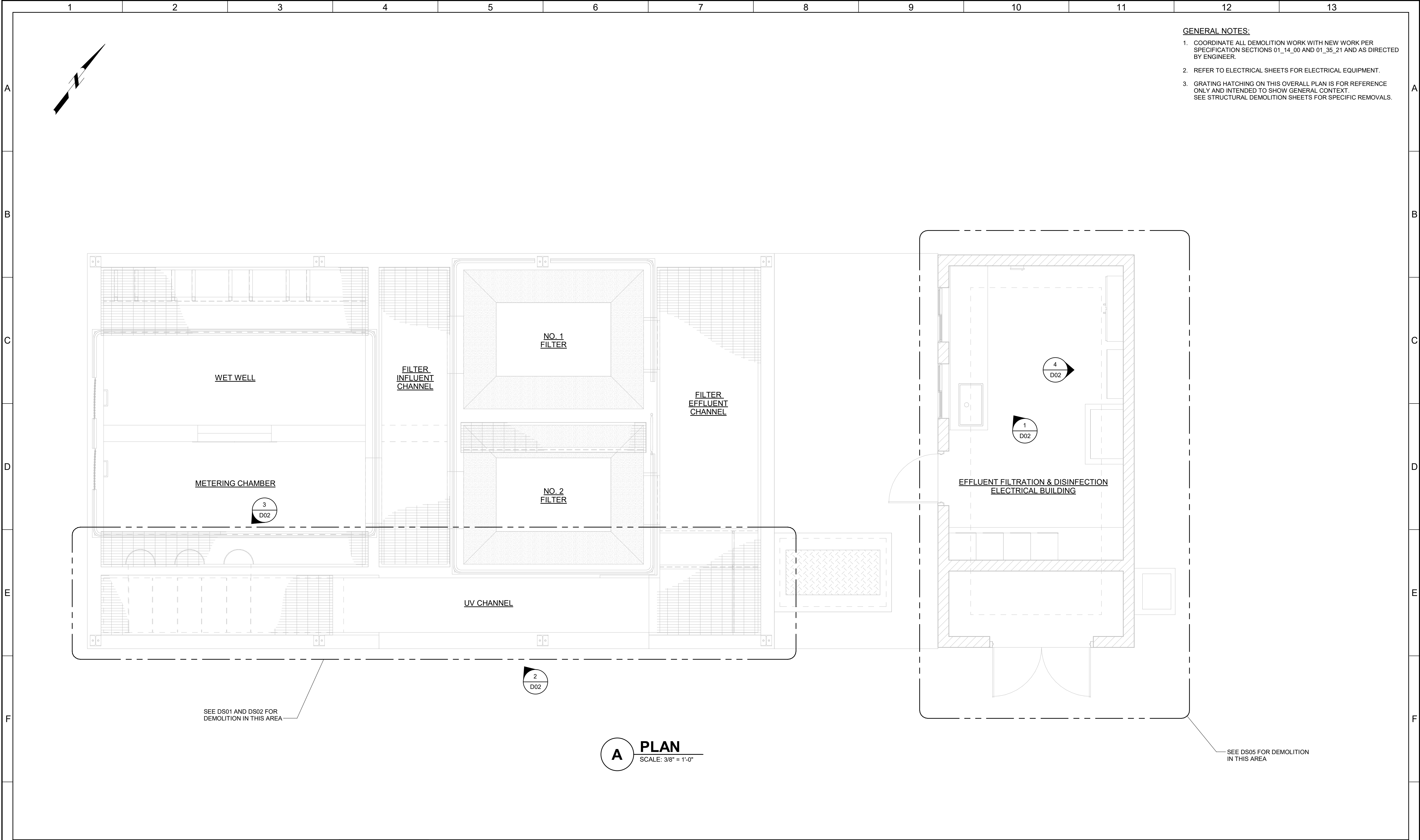
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Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std_Pen_v0905.pen PlotScale: 1:1

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G					DESIGNED KW	 Digitally signed by Tyler E. Kane Corrado Inc. Civil Engineers, Inc. (Date: 2025.10.12 16:02:31 -0700) 			CITY OF SANDY		VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0  1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 202880	G
					DRAWN LZV				DRAWING NO. G07				
					CHECKED TEK								
					DATE OCTOBER 2025				SHEET NO. 7 OF 58				
	REV	DATE	BY	DESCRIPTION									



- GENERAL NOTES:**
- COORDINATE ALL DEMOLITION WORK WITH NEW WORK PER SPECIFICATION SECTIONS 01_14_00 AND 01_35_21 AND AS DIRECTED BY ENGINEER.
 - REFER TO ELECTRICAL SHEETS FOR ELECTRICAL EQUIPMENT.
 - GRATING HATCHING ON THIS OVERALL PLAN IS FOR REFERENCE ONLY AND INTENDED TO SHOW GENERAL CONTEXT. SEE STRUCTURAL DEMOLITION SHEETS FOR SPECIFIC REMOVALS.

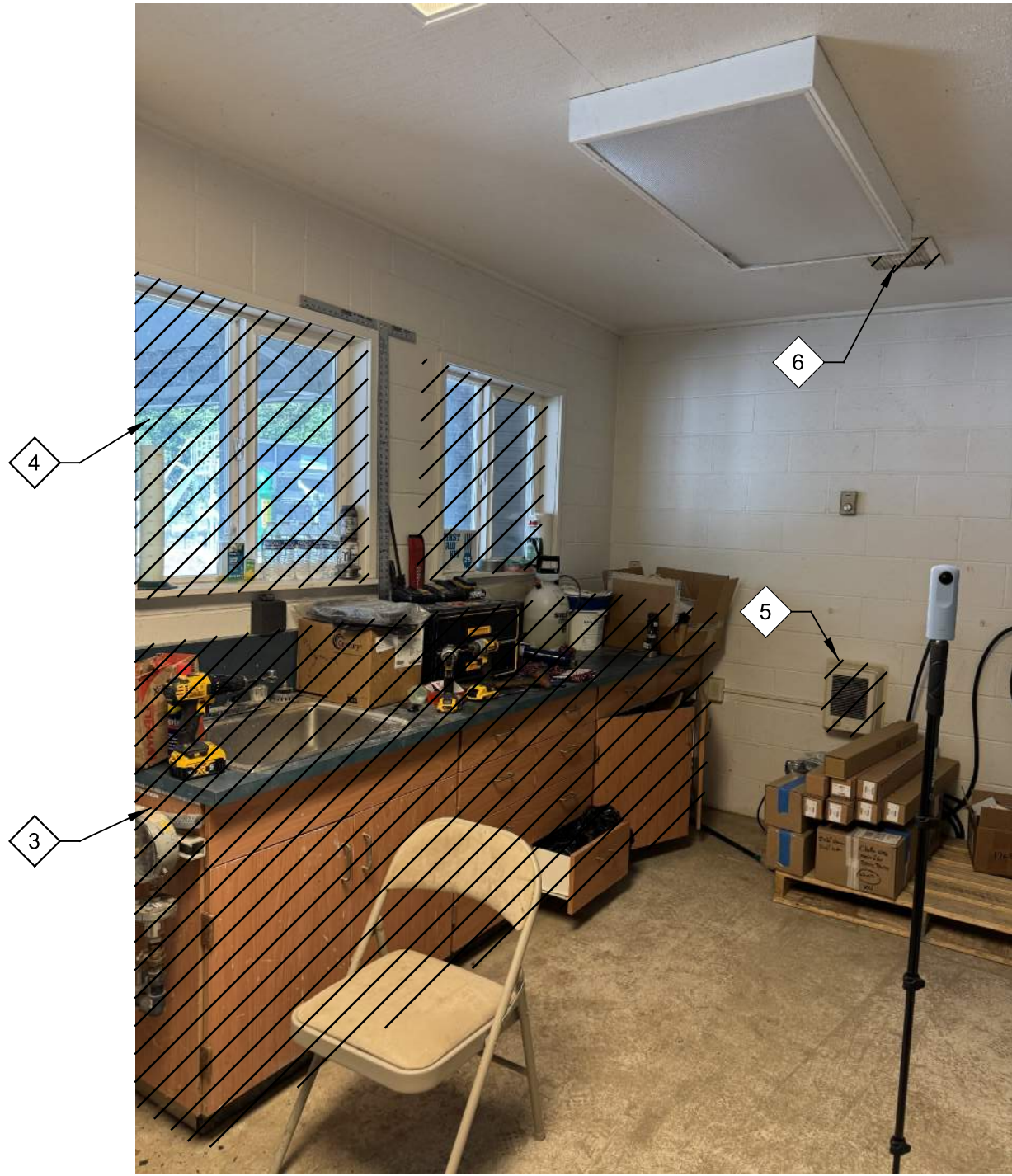
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				DRAWN NGB					WWTP UV IMPROVEMENTS				BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. D01
				CHECKED JAD					DEMOLITION				0 1"	SHEET NO.
REV	DATE	BY	DESCRIPTION	DATE OCTOBER 2025					EFFLUENT FILTRATION & DISINFECTION OVERALL PLAN				IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	OF XX
1									10	11	12	13		

Plot Date: 15-OCT-2025 2:00:39 PM

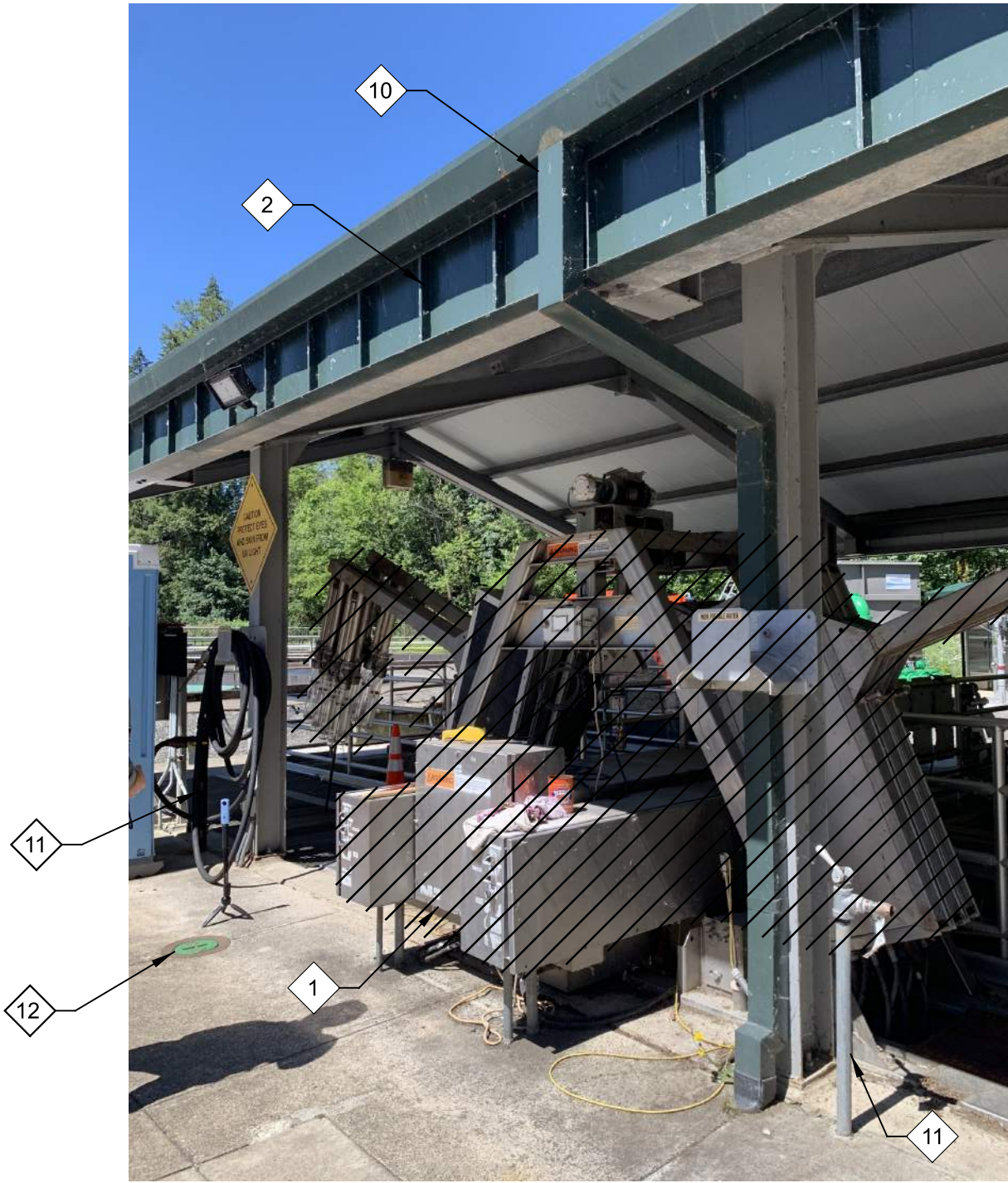
User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: iveloz



1 PHOTO
D01 SCALE: NO SCALE
FILE: 202880_00D0401



2 PHOTO
D01 SCALE: NO SCALE
FILE: 202880_00D0402



3 PHOTO
D01 SCALE: NO SCALE
FILE: 202880_00D0403



4 PHOTO
D01 SCALE: NO SCALE
FILE: 202880_00D0404

GENERAL NOTES:

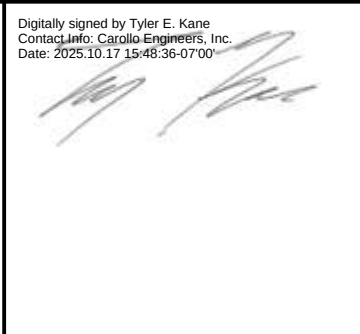
- COORDINATE ALL WORK WITH NEW WORK PER SPECIFICATION SECTION 01_14_00 AND AS DIRECTED BY ENGINEER.
- SALVAGE EQUIPMENT AS DIRECTED BY OWNER.
- EXISTING PIPING SYSTEMS ARE NOT SHOWN IN THEIR ENTIRETY. LOCATION AND SIZE OF PIPING SHALL BE FIELD VERIFIED AS REQUIRED TO FACILITATE NEW WORK.
- CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING FIXTURES, SUPPORTS AND EQUIPMENT AS REQUIRED TO FACILITATE NEW WORK.
- EXISTING STRUCTURES WHICH ARE CUT REMOVED, DAMAGED OR LEFT WITH OPENINGS BY THE DEMOLITION WORK SHALL BE REPAIRED AND FINISHED OFF TO MATCH THE ADJACENT EXISTING STRUCTURE.
- REMOVE ALL ABANDONED PIPE SUPPORTS, ANCHOR BOLTS AND CONCRETE ANCHORS. PATCH WITH REMOVAL OF ANCHOR BOLTS, CONCRETE ANCHORS, PIPING, ETC. REFER TO DS SHEETS.
- REFER TO ELECTRICAL SHEETS AND SECTION 26_05_00 FOR ELECTRICAL EQUIPMENT. REMOVE ELECTRICAL WIRING. SALVAGE WIRING PER OWNER REQUIREMENTS.

KEY NOTES:

- DEMOLISH EXISTING TROJAN UV4000 SYSTEM. DISASSEMBLE EXISTING SYSTEM AS NEEDED TO FIT THROUGH COLUMNS OR BETWEEN ROOF BEAMS.
- REMOVE AND REPLACE ROOF PANELS BY CONTRACTOR AS NEEDED TO FACILITATE NEW WORK. DISASSEMBLE CANOPY AS NEEDED TO REMOVE EQUIPMENT.
- DEMOLISH EXISTING WORKSTATION AND PIPING.
- DEMOLISH ELECTRICAL BUILDING HORIZONTAL SLIDING WINDOWS WITH SCREENS.
- DEMOLISH EXISTING UNIT HEATER AND ANCILLARY COMPONENTS.
- DEMOLISH EXISTING EXHAUST FAN AND ANCILLARY COMPONENTS.
- DEMOLISH EXISTING FRP EFFLUENT TROUGHS (TYP OF 3).
- DEMOLISH EXISTING UV VENDOR PANEL (120V) AND ASSOCIATED COMPONENTS.
- RELOCATE EXISTING LEVEL INSTRUMENT TO ADJACENT WALL OF METERING CHAMBER. DOWNSTREAM OF NEW DEFLECTOR PLATE. REFER TO ELECTRICAL DWG E10.
- REROUTE ROOF DRAIN LINE AND RECONNECT INTO EXISTING BELOW-GRADE 6 INCH DRAIN LINE CLOSER TO ELECTRICAL BUILDING AS TO AVOID CONFLICT WITH NEW MAINTENANCE PLATFORM. MAINTAIN SLOPE OF DRAIN LINE. SUBMIT PROPOSED DRAIN LINE ROUTING TO OWNER AND ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
- REROUTE PLANT WATER (PW) LINE AND HYDRANT LOCATIONS TO AVOID CONFLICT WITH NEW MAINTENANCE PLATFORM. PER THE 1998 RECORD DRAWINGS, THE TWO HYDRANTS IDENTIFIED ARE CONNECTED VIA A 1-1/2 INCH LINE. PW LINES SHALL BE REROUTED AROUND THE EXTENT OF THE MAINTENANCE PLATFORM AREA AND HYDRANTS SHALL BE PLACED AT A NEARBY LOCATION THAT DOES NOT CONFLICT WITH THE MAINTENANCE PLATFORM. HYDRANTS AND HOSEBIB ACCESSORIES MAY BE REUSED. SUBMIT PROPOSED PW ROUTING TO OWNER AND ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
- CONTRACTOR TO FIELD VERIFY AND NOTIFY ENGINEER OF LINE SIZE AND EXISTING ROUTING PRIOR TO DEMOLITION ACTIVITIES.

REV	DATE	BY	DESCRIPTION

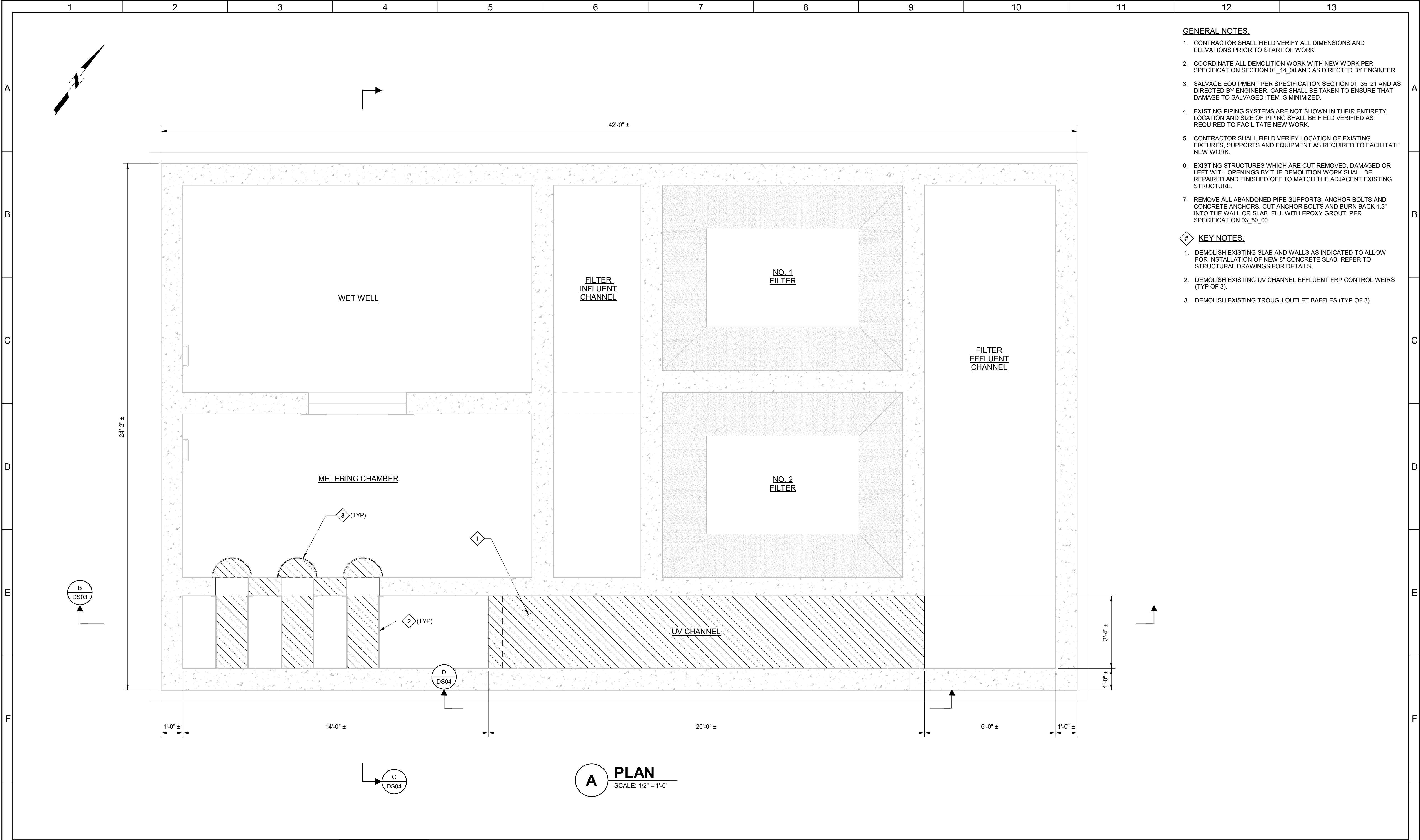
DESIGNED KW
DRAWN LZV
CHECKED
DATE OCTOBER 2025



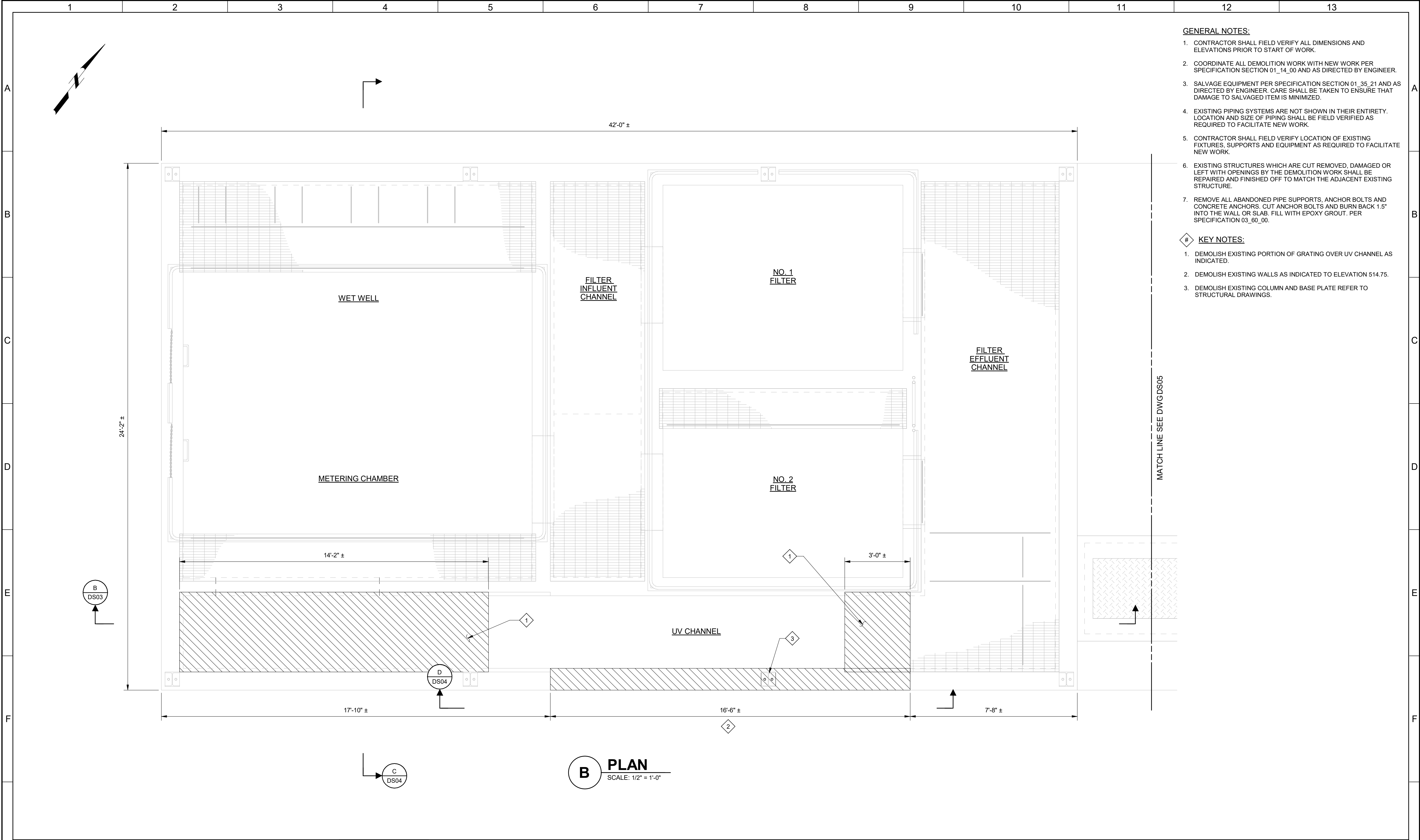
CITY OF SANDY
WWTP UV IMPROVEMENTS
DEMOLITION
EFFLUENT FILTRATION & DISINFECTION
SITE PHOTOS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

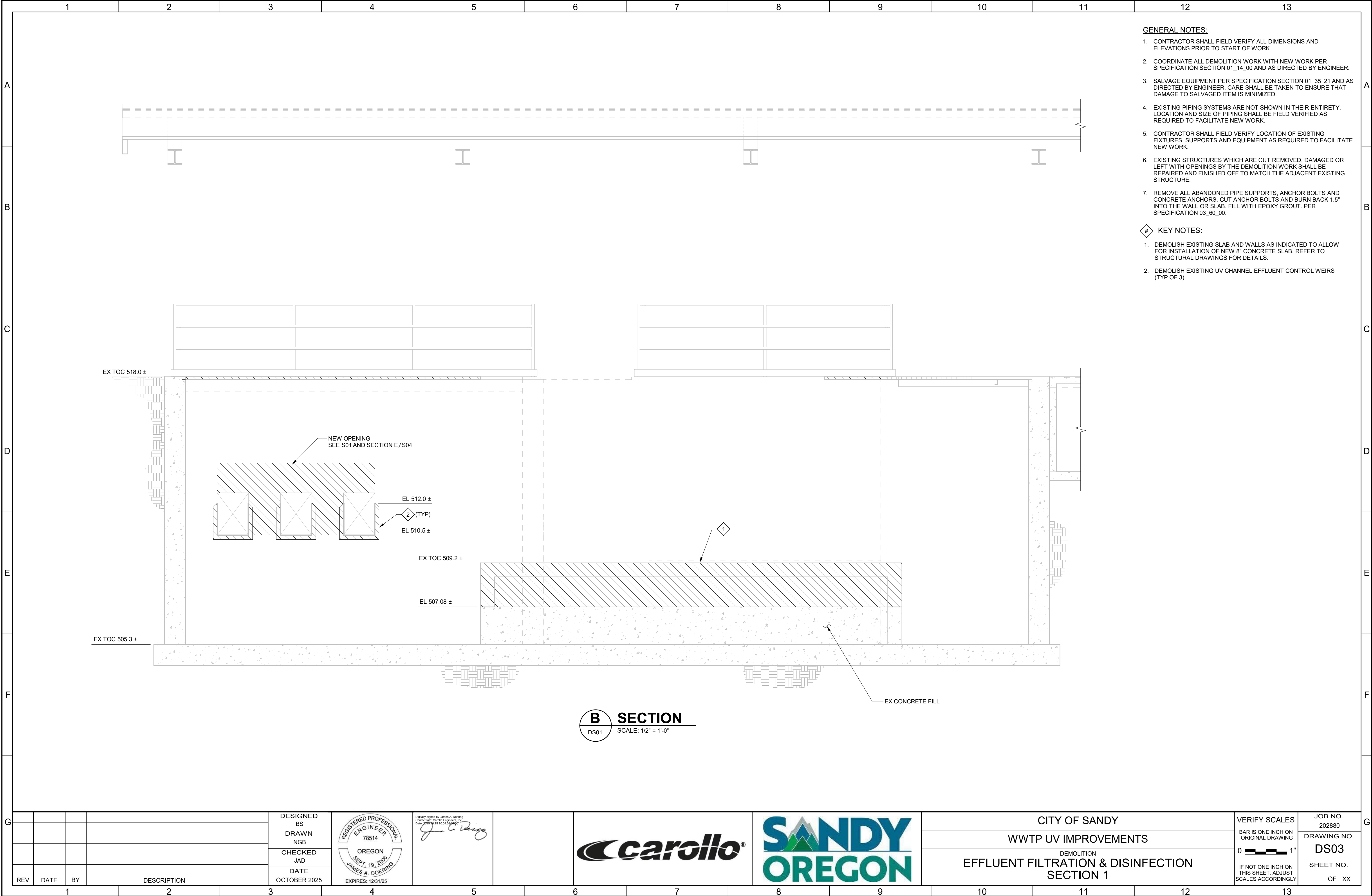
JOB NO. 202880
DRAWING NO. D02
SHEET NO. 9 OF 58



G					DESIGNED BS					CITY OF SANDY			VERIFY SCALES	JOB NO. 202880	G
					DRAWN NGB					WWTP UV IMPROVEMENTS			BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO.	
					CHECKED JAD					DEMOLITION			0 1"	DS01	
					DATE OCTOBER 2025					EFFLUENT FILTRATION & DISINFECTION LOWER PLAN			IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. OF XX	
	REV	DATE	BY	DESCRIPTION											



				DESIGNED BS					CITY OF SANDY				VERIFY SCALES	JOB NO. 202880
				DRAWN NGB					WWTP UV IMPROVEMENTS				BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO.
				CHECKED JAD					DEMOLITION				0 1"	DS02
				DATE OCTOBER 2025					EFFLUENT FILTRATION & DISINFECTION FLOOR PLAN				IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. OF XX
REV	DATE	BY	DESCRIPTION											
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- GENERAL NOTES:**
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO START OF WORK.
 2. COORDINATE ALL DEMOLITION WORK WITH NEW WORK PER SPECIFICATION SECTION 01_14_00 AND AS DIRECTED BY ENGINEER.
 3. SALVAGE EQUIPMENT PER SPECIFICATION SECTION 01_35_21 AND AS DIRECTED BY ENGINEER. CARE SHALL BE TAKEN TO ENSURE THAT DAMAGE TO SALVAGED ITEM IS MINIMIZED.
 4. EXISTING PIPING SYSTEMS ARE NOT SHOWN IN THEIR ENTIRETY. LOCATION AND SIZE OF PIPING SHALL BE FIELD VERIFIED AS REQUIRED TO FACILITATE NEW WORK.
 5. CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING FIXTURES, SUPPORTS AND EQUIPMENT AS REQUIRED TO FACILITATE NEW WORK.
 6. EXISTING STRUCTURES WHICH ARE CUT REMOVED, DAMAGED OR LEFT WITH OPENINGS BY THE DEMOLITION WORK SHALL BE REPAIRED AND FINISHED OFF TO MATCH THE ADJACENT EXISTING STRUCTURE.
 7. REMOVE ALL ABANDONED PIPE SUPPORTS, ANCHOR BOLTS AND CONCRETE ANCHORS. CUT ANCHOR BOLTS AND BURN BACK 1.5" INTO THE WALL OR SLAB. FILL WITH EPOXY GROUT. PER SPECIFICATION 03_60_00.

- # KEY NOTES:**
1. DEMOLISH EXISTING SLAB AND WALLS AS INDICATED TO ALLOW FOR INSTALLATION OF NEW 8" CONCRETE SLAB. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
 2. DEMOLISH EXISTING UV CHANNEL EFFLUENT CONTROL WEIRS (TYP OF 3).

B SECTION
SCALE: 1/2" = 1'-0"

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- ### GENERAL NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO START OF WORK.
 2. COORDINATE ALL DEMOLITION WORK WITH NEW WORK PER SPECIFICATION SECTION 01_14_00 AND AS DIRECTED BY ENGINEER.
 3. SALVAGE EQUIPMENT PER SPECIFICATION SECTION 01_35_21 AND AS DIRECTED BY ENGINEER. CARE SHALL BE TAKEN TO ENSURE THAT DAMAGE TO SALVAGED ITEM IS MINIMIZED.
 4. EXISTING PIPING SYSTEMS ARE NOT SHOWN IN THEIR ENTIRETY. LOCATION AND SIZE OF PIPING SHALL BE FIELD VERIFIED AS REQUIRED TO FACILITATE NEW WORK.
 5. CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING FIXTURES, SUPPORTS AND EQUIPMENT AS REQUIRED TO FACILITATE NEW WORK.
 6. EXISTING STRUCTURES WHICH ARE CUT REMOVED, DAMAGED OR LEFT WITH OPENINGS BY THE DEMOLITION WORK SHALL BE REPAIRED AND FINISHED OFF TO MATCH THE ADJACENT EXISTING STRUCTURE.
 7. REMOVE ALL ABANDONED PIPE SUPPORTS, ANCHOR BOLTS AND CONCRETE ANCHORS. CUT ANCHOR BOLTS AND BURN BACK 1.5" INTO THE WALL OR SLAB. FILL WITH EPOXY GROUT. PER SPECIFICATION 03_60_00.

- # KEY NOTES:**

 1. DEMOLISH EXISTING SLAB AND WALLS AS INDICATED TO ALLOW FOR INSTALLATION OF NEW 8" CONCRETE SLAB. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
 2. DEMOLISH EXISTING UV CHANNEL EFFLUENT CONTROL WEIRS (TYP OF 3).
 3. DEMOLISH EXISTING FRP TROUGH OUTLET BAFFLES (TYP OF 3).
 4. DEMOLISH EXISTING WALL AS INDICATED TO ELEVATION 514.75.
 5. DEMOLISH EXISTING COLUMN AND BASE PLATE, SEE PLAN B/DS02. REFER TO STRUCTURAL DRAWINGS.

REV	DATE	BY	DESCRIPTION

DESIGNED BS	
DRAWN NGB	
CHECKED JAD	
DATE	
OCTOBER 2025	

Digitally signed by James A. Doering
Contact Info: Carillo Engineers, Inc.
Date: 2025.10.15 10:04:22 -0700



CITY OF SANDY
WWTP UV IMPROVEMENTS
DEMOLITION
EFFLUENT FILTRATION & DISINFECTION
SECTION 2

VERIFY SCALES

BAR IS ONE INCH ON
ORIGINAL DRAWING

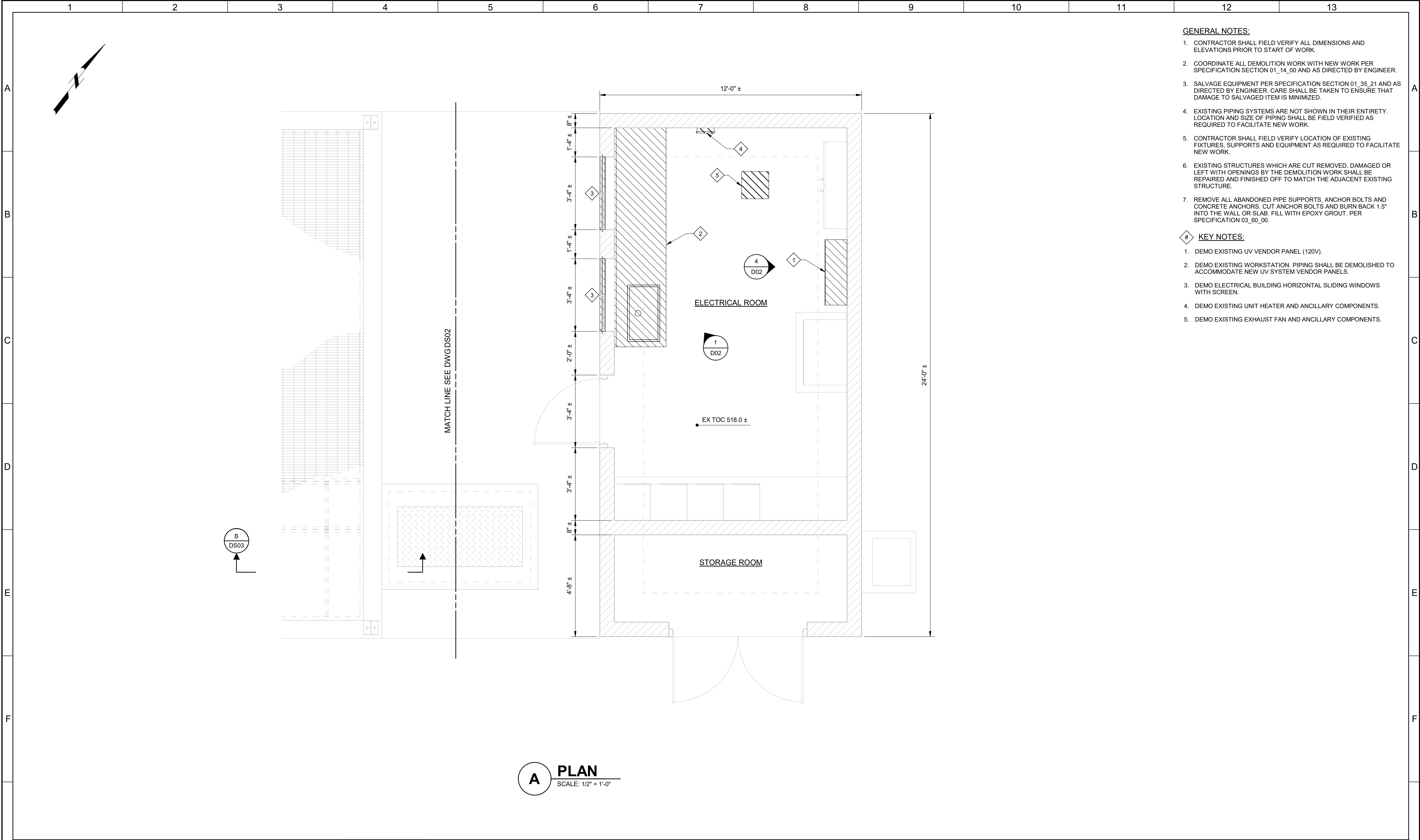
0  1"

IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

JOB NO.
202880

DRAWING NO.
DS04

SHEET NO.
OF XX



- GENERAL NOTES:**
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO START OF WORK.
 - COORDINATE ALL DEMOLITION WORK WITH NEW WORK PER SPECIFICATION SECTION 01_14_00 AND AS DIRECTED BY ENGINEER.
 - SALVAGE EQUIPMENT PER SPECIFICATION SECTION 01_35_21 AND AS DIRECTED BY ENGINEER. CARE SHALL BE TAKEN TO ENSURE THAT DAMAGE TO SALVAGED ITEM IS MINIMIZED.
 - EXISTING PIPING SYSTEMS ARE NOT SHOWN IN THEIR ENTIRETY. LOCATION AND SIZE OF PIPING SHALL BE FIELD VERIFIED AS REQUIRED TO FACILITATE NEW WORK.
 - CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING FIXTURES, SUPPORTS AND EQUIPMENT AS REQUIRED TO FACILITATE NEW WORK.
 - EXISTING STRUCTURES WHICH ARE CUT REMOVED, DAMAGED OR LEFT WITH OPENINGS BY THE DEMOLITION WORK SHALL BE REPAIRED AND FINISHED OFF TO MATCH THE ADJACENT EXISTING STRUCTURE.
 - REMOVE ALL ABANDONED PIPE SUPPORTS, ANCHOR BOLTS AND CONCRETE ANCHORS. CUT ANCHOR BOLTS AND BURN BACK 1.5" INTO THE WALL OR SLAB. FILL WITH EPOXY GROUT. PER SPECIFICATION 03_60_00.

- KEY NOTES:**
- DEMO EXISTING UV VENDOR PANEL (120V).
 - DEMO EXISTING WORKSTATION. PIPING SHALL BE DEMOLISHED TO ACCOMMODATE NEW UV SYSTEM VENDOR PANELS.
 - DEMO ELECTRICAL BUILDING HORIZONTAL SLIDING WINDOWS WITH SCREEN.
 - DEMO EXISTING UNIT HEATER AND ANCILLARY COMPONENTS.
 - DEMO EXISTING EXHAUST FAN AND ANCILLARY COMPONENTS.

A PLAN
SCALE: 1/2" = 1'-0"

				DESIGNED BS					CITY OF SANDY				VERIFY SCALES	JOB NO. 202880
				DRAWN NGB					WWTP UV IMPROVEMENTS				BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. DS05
				CHECKED JAD					DEMOLITION				0 1"	SHEET NO.
				DATE OCTOBER 2025					EFFLUENT FILTRATION & DISINFECTION ELEC BLDG FLOOR PLAN				IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	OF XX
REV	DATE	BY	DESCRIPTION											
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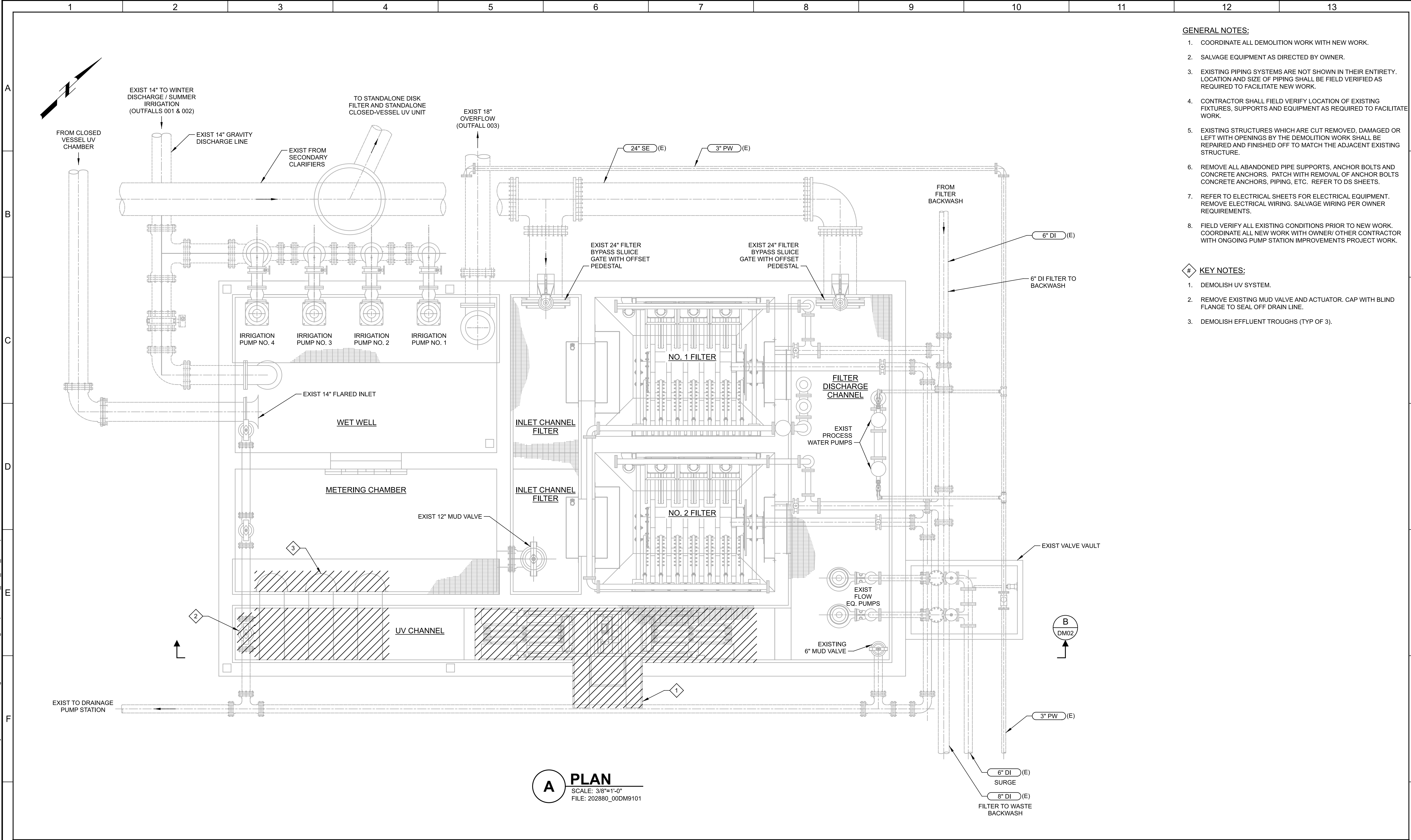
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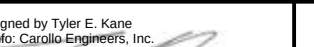
User: svcPW

PlotScale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std_Pen_v0905.pen

LAST SAVED BY: iveloz



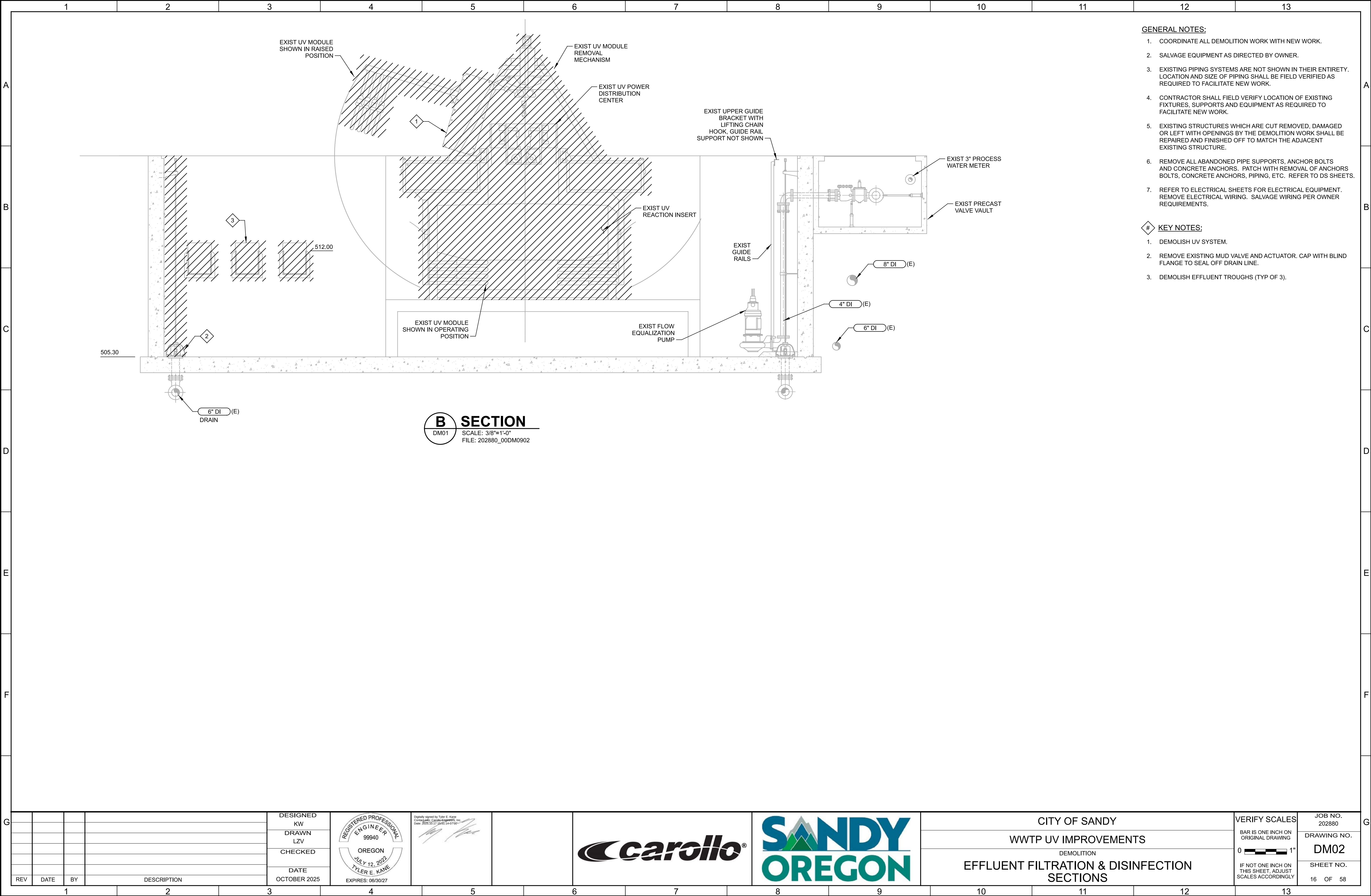
G					DESIGNED KW					CITY OF SANDY		VERIFY SCALES	JOB NO. 202880
					DRAWN LZV					WWTP UV IMPROVEMENTS	BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. DM01	
					CHECKED								
					DATE OCTOBER 2025	DEMOLITION		0 1"	SHEET NO.				
	REV	DATE	BY	DESCRIPTION	EFFLUENT FILTRATION & DISINFECTION PLAN		IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		15 OF 58				

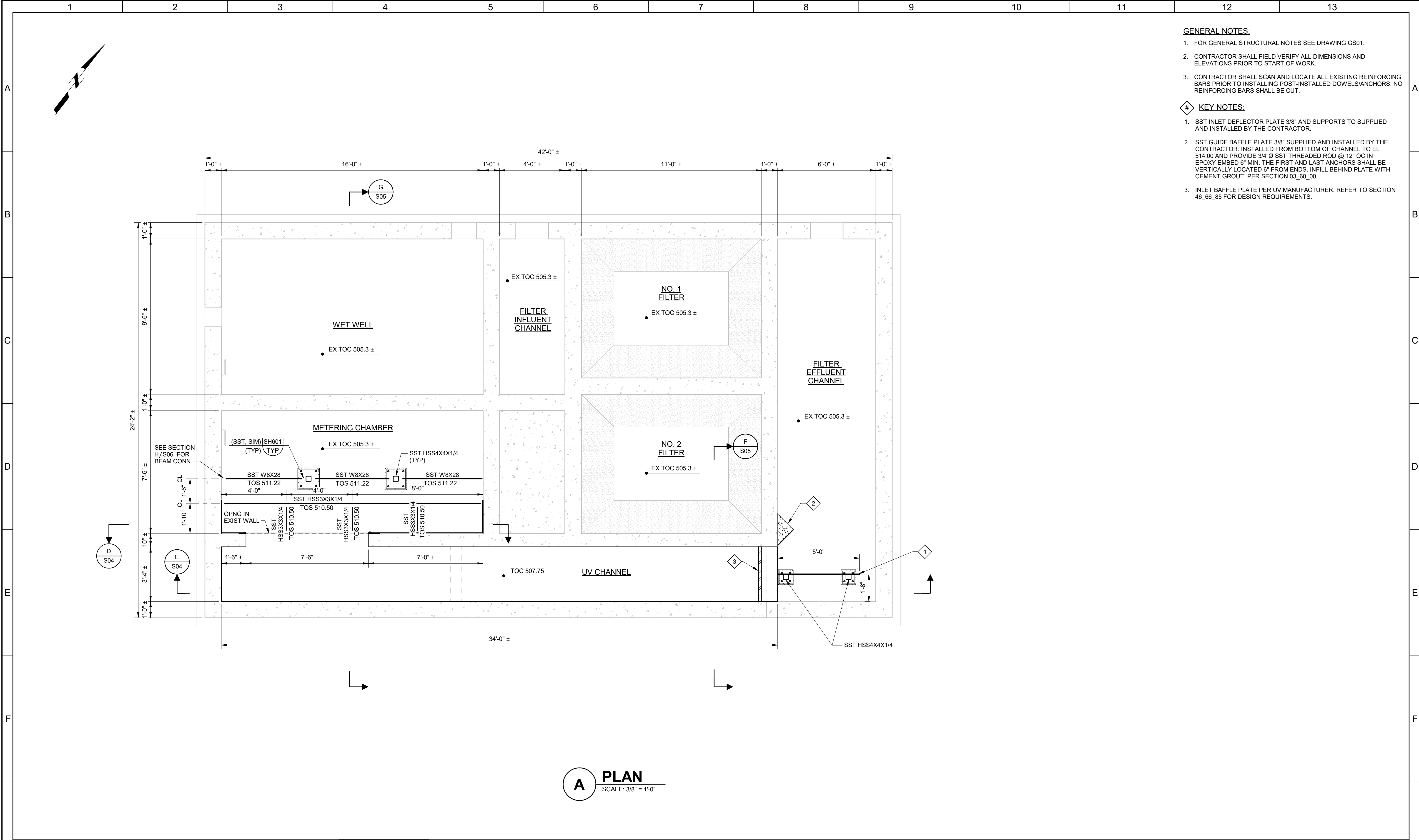
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LAST SAVED BY: iveloz



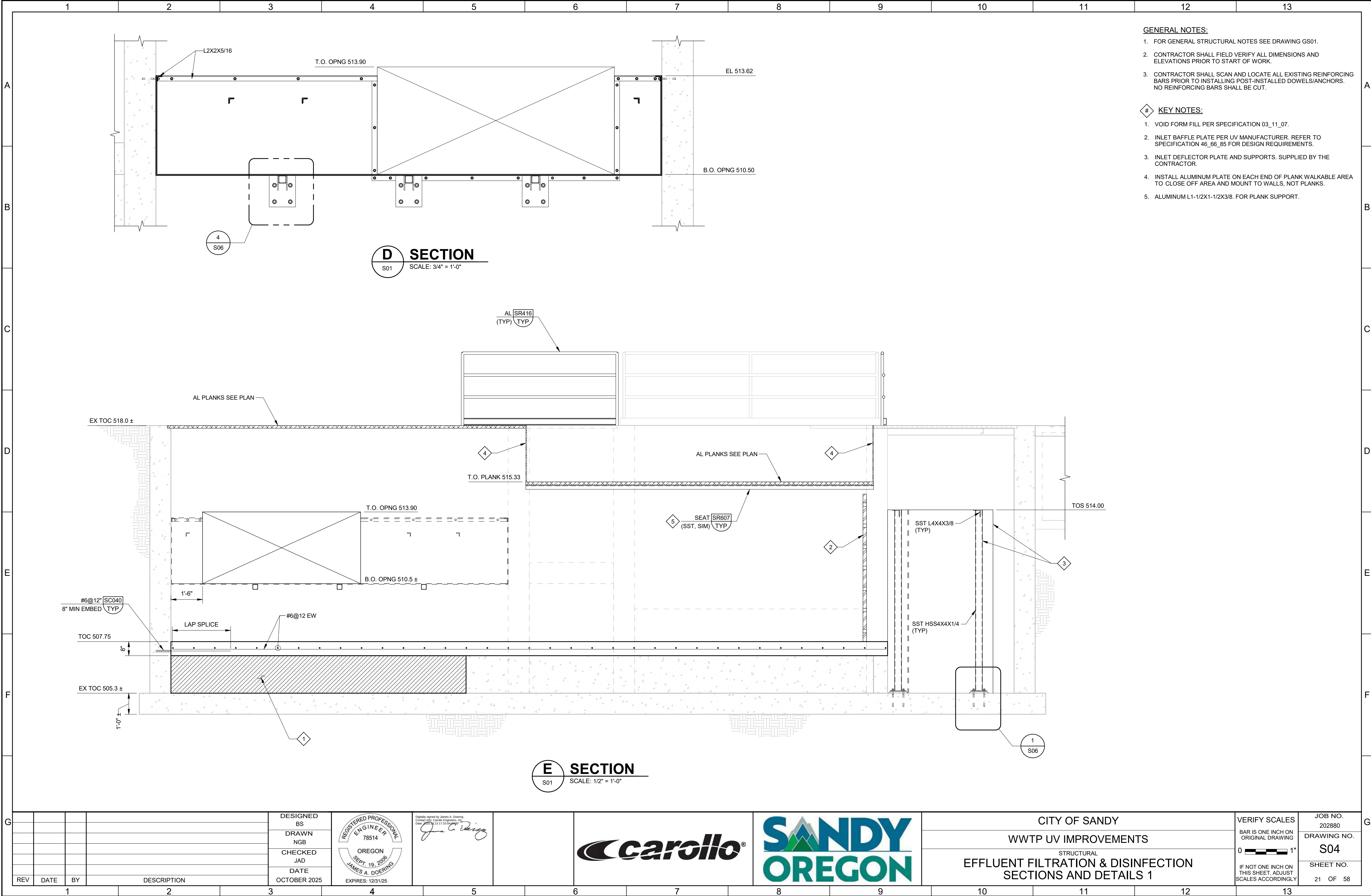


- GENERAL NOTES:**
- FOR GENERAL STRUCTURAL NOTES SEE DRAWING GS01.
 - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO START OF WORK.
 - CONTRACTOR SHALL SCAN AND LOCATE ALL EXISTING REINFORCING BARS PRIOR TO INSTALLING POST-INSTALLED DOWELS/ANCHORS. NO REINFORCING BARS SHALL BE CUT.
- KEY NOTES:**
- SST INLET DEFLECTOR PLATE 3/8" AND SUPPORTS TO SUPPLIED AND INSTALLED BY THE CONTRACTOR.
 - SST GUIDE BAFFLE PLATE 3/8" SUPPLIED AND INSTALLED BY THE CONTRACTOR. INSTALLED FROM BOTTOM OF CHANNEL TO EL 514.00 AND PROVIDE 3/4" Ø SST THREADED ROD @ 12" OC IN EPOXY EMBED 6" MIN. THE FIRST AND LAST ANCHORS SHALL BE VERTICALLY LOCATED 6" FROM ENDS. INFILL BEHIND PLATE WITH CEMENT GROUT. PER SECTION 03_60_00.
 - INLET BAFFLE PLATE PER UV MANUFACTURER. REFER TO SECTION 46_66_85 FOR DESIGN REQUIREMENTS.

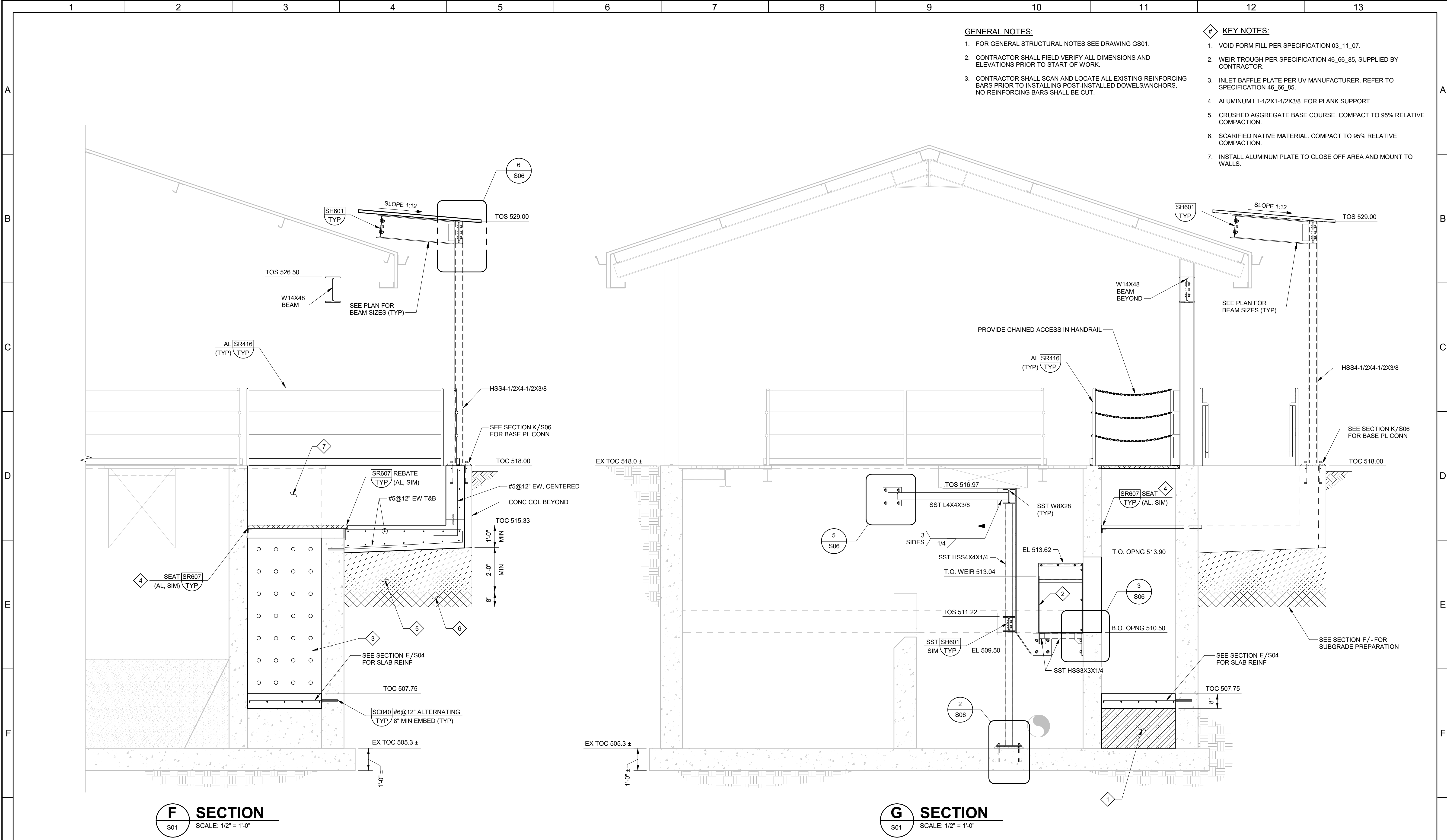
A PLAN
SCALE: 3/8" = 1'-0"

G					DESIGNED BS					CITY OF SANDY			VERIFY SCALES	JOB NO. 202880	G
					DRAWN NGB					WWTP UV IMPROVEMENTS			BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO.	
					CHECKED JAD					STRUCTURAL			0 1"	S01	
					DATE OCTOBER 2025					EFFLUENT FILTRATION & DISINFECTION LOWER PLAN			IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 18 OF 58	
	REV	DATE	BY	DESCRIPTION											
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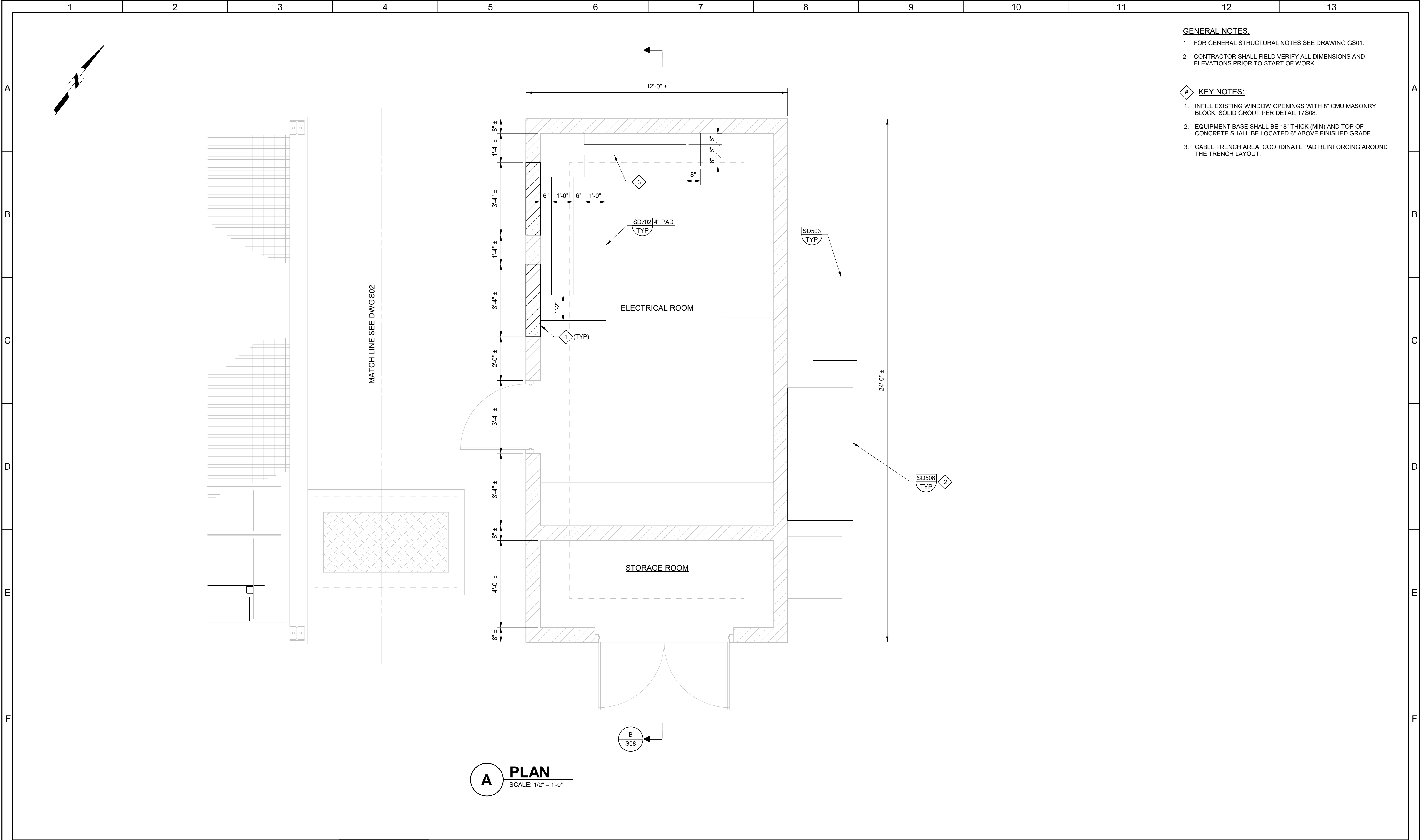
PLOT DATE: 10/10/2025 7:34:27 PM



PLOT DATE: 10/10/2025 7:37:13 PM



G					DESIGNED BS					CITY OF SANDY			VERIFY SCALES	JOB NO. 202880	G
					DRAWN NGB					WWTP UV IMPROVEMENTS			BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. S05	
					CHECKED JAD					STRUCTURAL			0 1"	SHEET NO. 22 OF 58	
					DATE OCTOBER 2025					EFFLUENT FILTRATION & DISINFECTION SECTIONS AND DETAILS 2			IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		
	REV	DATE	BY	DESCRIPTION											



- GENERAL NOTES:**
- FOR GENERAL STRUCTURAL NOTES SEE DRAWING GS01.
 - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO START OF WORK.
- KEY NOTES:**
- INFILL EXISTING WINDOW OPENINGS WITH 8" CMU MASONRY BLOCK, SOLID GROUT PER DETAIL 1/S08.
 - EQUIPMENT BASE SHALL BE 18" THICK (MIN) AND TOP OF CONCRETE SHALL BE LOCATED 6" ABOVE FINISHED GRADE.
 - CABLE TRENCH AREA. COORDINATE PAD REINFORCING AROUND THE TRENCH LAYOUT.

A PLAN
SCALE: 1/2" = 1'-0"

G					DESIGNED BS		Digitally signed by James A. Doering Connect with Carollo Engineers, Inc. Date: 2025.10.13 17:01:59 -0700			CITY OF SANDY			VERIFY SCALES	JOB NO. 202880	G	
					DRAWN NGB					WWTP UV IMPROVEMENTS			BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO.		
					CHECKED JAD					STRUCTURAL			0 1"	S07		
					DATE OCTOBER 2025					EFFLUENT FILTRATION & DISINFECTION ELEC BLDG FLOOR PLAN			IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO.		
	REV	DATE	BY	DESCRIPTION									24 OF 58			
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PLOT DATE: 10/11/2025 1:48:26 PM

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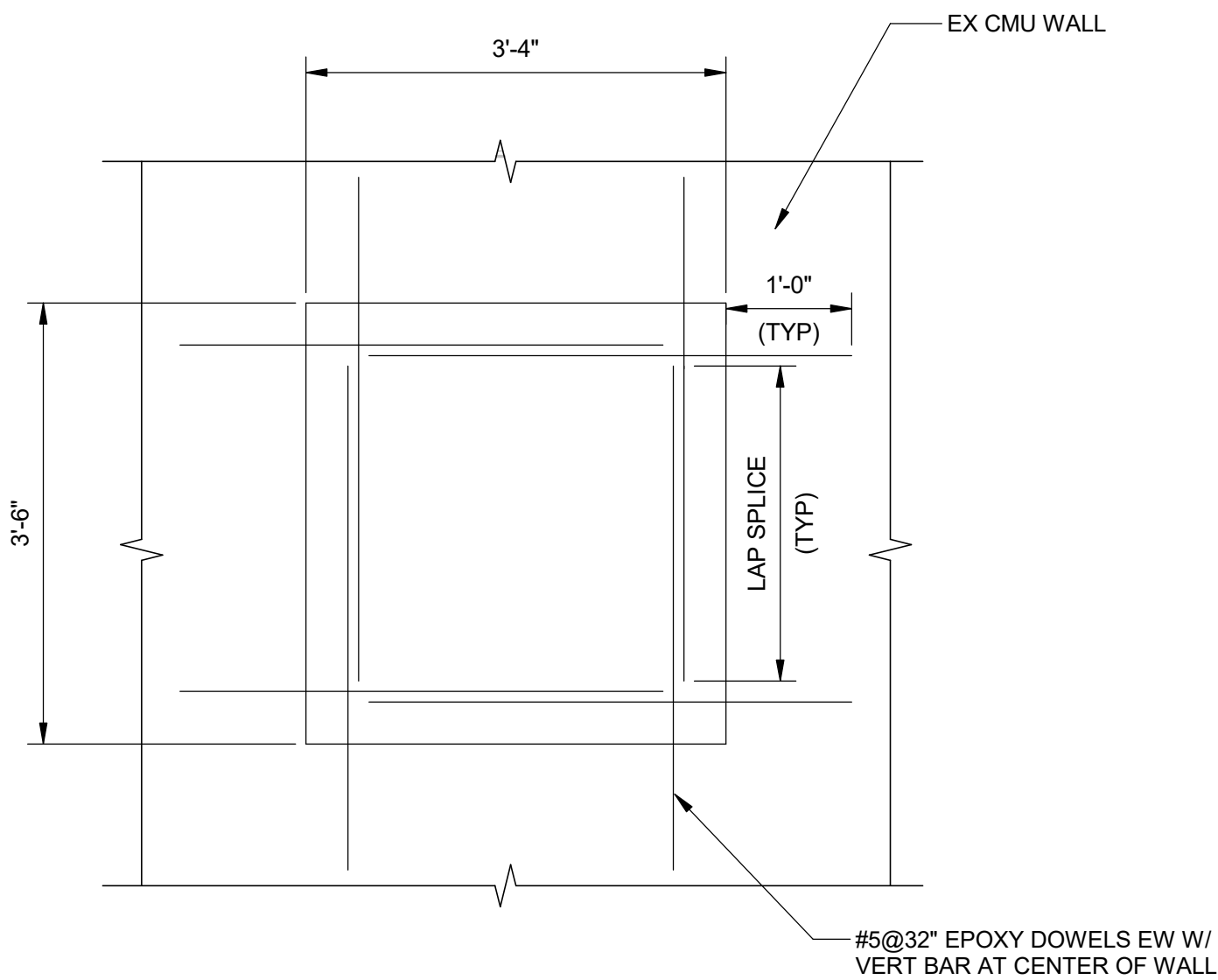
[illegible]

GENERAL NOTES:

1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING GS01
2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO START OF WORK.

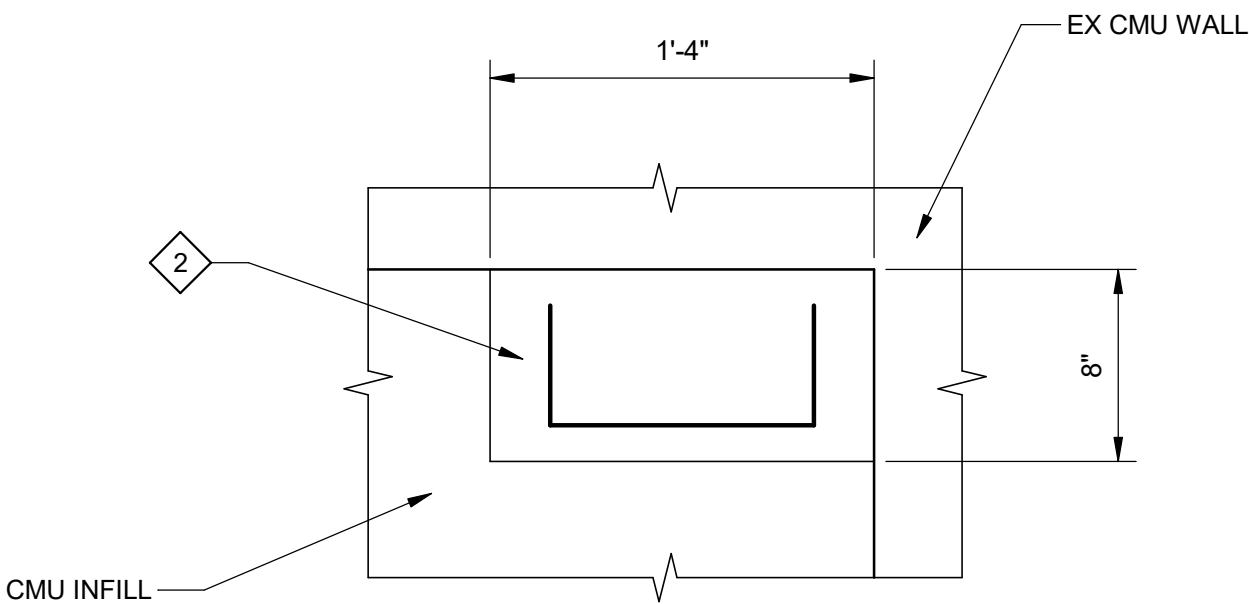
KEY NOTES:

1. INFILL EXISTING WINDOW OPENINGS WITH 8" CMU MASONRY BLOCK, SOLID GROUT PER DETAIL 1/- . CMU BLOCK INTERIOR AND EXTERIOR FINISHES AND COLOR SHALL MATCH WITH EXISTING.
2. CONTRACTOR SHALL INSTALL NON-SHRINK GROUT AROUND THE CABLE TRAY THROUGH OPENING.
3. REFER TO ELECTRICAL DRAWINGS FOR CONDUIT RUN LOCATION. SUPPORTS SHALL BE SPACED 10' MAX.



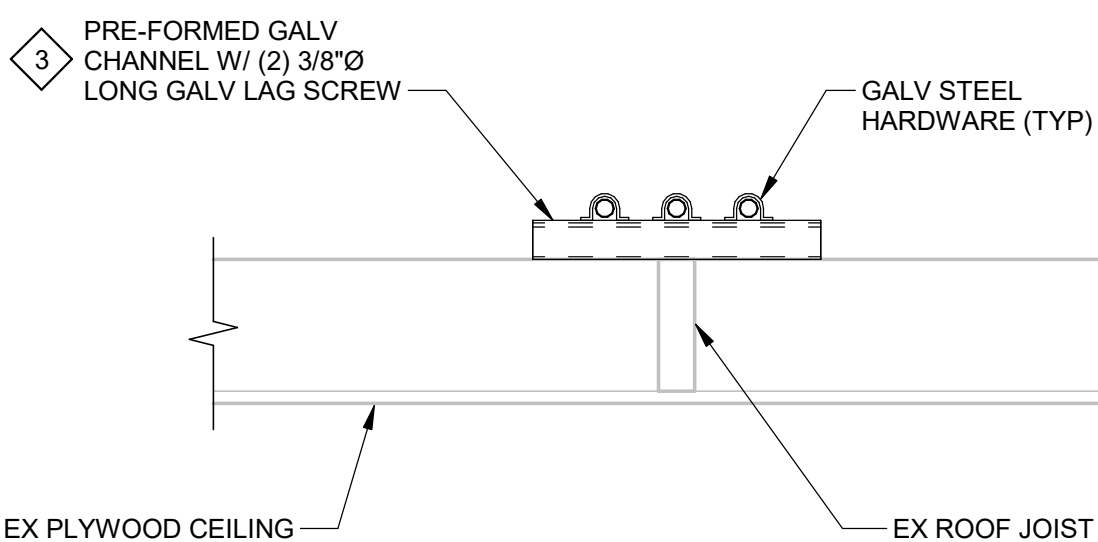
NOTE: CMU BLOCK NOT SHOWN FOR CLARITY.

1 **DETAIL**
SCALE: 3/4" = 1'-0"

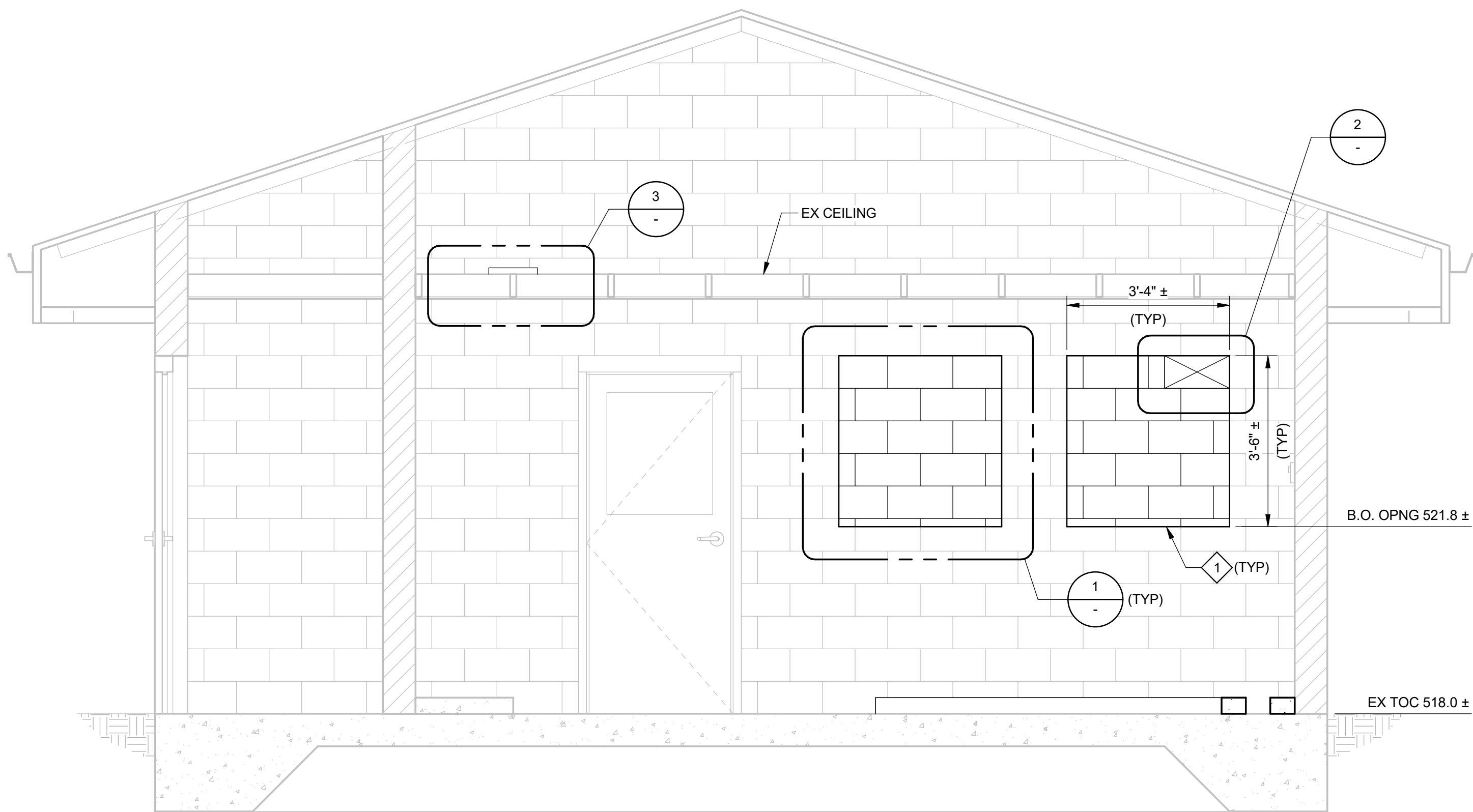


NOTE: CMU BLOCK NOT SHOWN FOR CLARITY.

2 **DETAIL**
SCALE: 1 1/2" = 1'-0"



3 **DETAIL**
- SCALE: 1 1/2" = 1'-0"



B SECTION
S07 SCALE: 1/2" = 1'-0"

[illegible]

PLOT DATE: 10/10/2025 7:39:20 PM

FILE NAME: Autodesk Docs://Sandy - 202880/202880_00S9801.rvt

Plot Date: 16-OCT-2025 2:15:23 PM

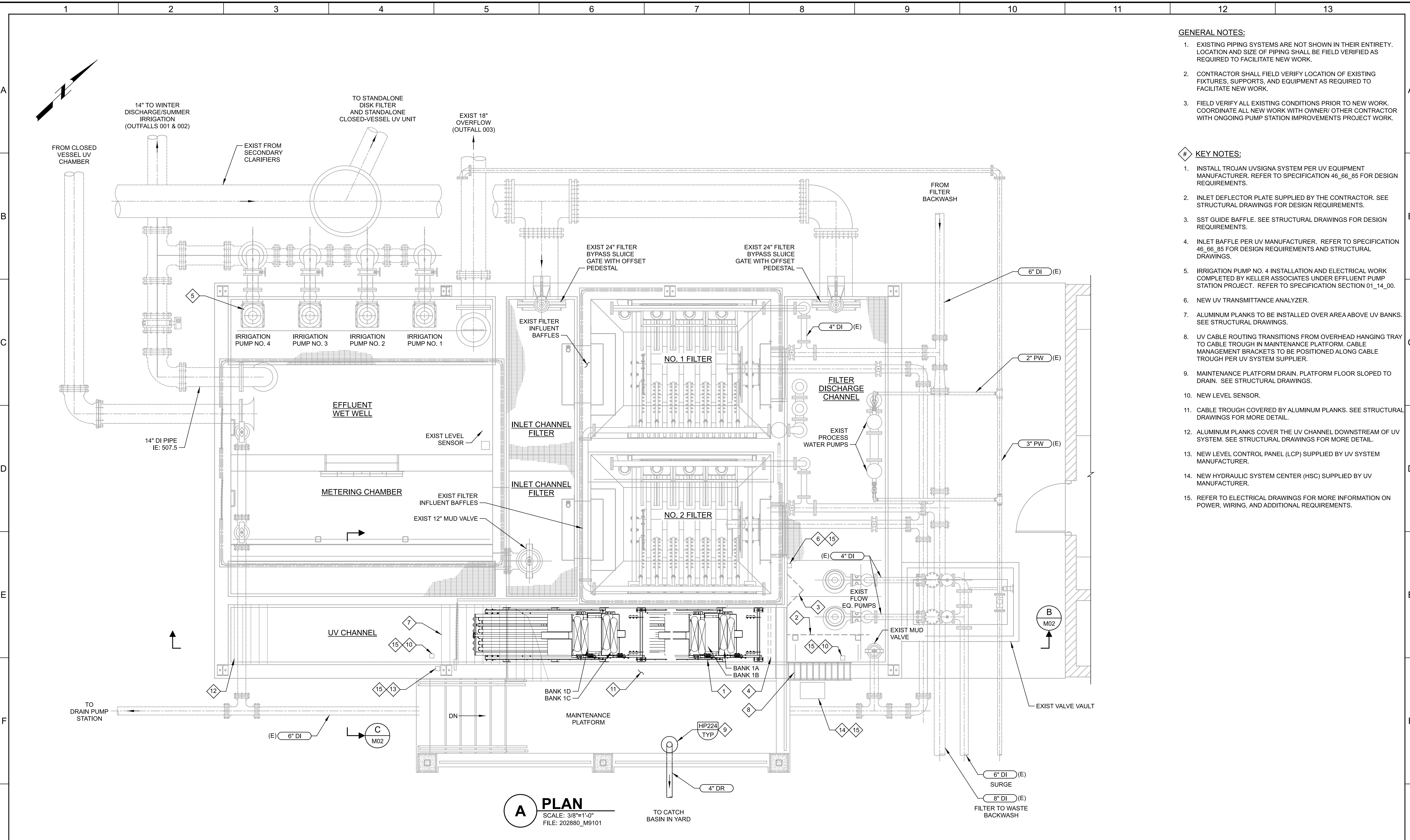
User: svcPW

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LAST SAVED BY: lveloz

PIPING SYMBOLS													MECHANICAL SYMBOLS													IDENTIFICATION SYMBOLS																																						
DOUBLE LINE SINGLE LINE DESCRIPTION WELDED JOINT GROOVED END JOINT FLANGED JOINT HUB & SPIGOT JOINT (RUBBER GASKET) PUSH-ON JOINT (RESTRAINED) ADAPTER SIDE GROOVED END ADAPTER FLANGE FLANGED COUPLING ADAPTER FLANGED COUPLING ADAPTER WITH THRUST TIES FLEXIBLE COUPLING FLEXIBLE COUPLING WITH THRUST TIES METAL BELLOWS EXP JOINT ELASTOMER BELLOWS EXP JOINT FLEXIBLE COUPLING ADAPTER DISMANTLING JOINT EXPANSION COMPENSATOR ELBOW UP ELBOW DOWN TEE UP TEE DOWN LATERAL UP LATERAL DOWN CONCENTRIC REDUCER ECCENTRIC REDUCER (FOT, FOB) UNION CAP ANCHOR ELBOW, 90 DEGREE CROSS TEE ELBOW, 45 DEGREE ELBOW, 22.5 DEGREE ELBOW, 11.25 DEGREE LATERAL													DOUBLE LINE SINGLE LINE DESCRIPTION GATE VALVE KNIFE GATE VALVE BUTTERFLY VALVE CHARACTERIZED BALL CONTROL VALVE BALL VALVE GLOBE VALVE 3-WAY GLOBE TYPE MIXING VALVE FOUR WAY VALVE DIAPHRAGM VALVE PLUG VALVE LUBRICATED PLUG VALVE ECCENTRIC PLUG VALVE CONCENTRIC PLUG VALVE SWING CHECK VALVE WAFER CHECK VALVE PINCH VALVE BALL CHECK VALVE DUAL CHECK VALVE SILENT CHECK VALVE MUD VALVE (PLAN VIEW) NEEDLE VALVE CHECK BACKFLOW PREVENTER PIPE MATERIAL CHANGE													SINGLE LINE DESCRIPTION AIR OR CHEMICAL DIFFUSER QUICK DISCONNECT HIGH PRESSURE AIR OR FLUSHING BATCHMETER AIR VENT BASKET STRAINER BLOWER CALIBRATION COLUMN COMPRESSOR/TURBINE COMPRESSOR: RECIPROCATING DIAPHRAGM SEAL DRAIN EJECTOR OR EDUCTOR ELECTRIC MOTOR EQUIPMENT DRAIN EXPANSION JOINT, FLEXIBLE VIBRATION JOINT FAN: EXHAUST/SUPPLY FILTER FIRE HYDRANT FLAME ARRESTER FLAME ARRESTER WITH THERMALLY OPERATED VALVE FLOOR DRAIN FLOW SWITCH GAUGE: PRESSURE GAUGE: DIFFERENTIAL PRESSURE WEIR MIXER OIL OR MOISTURE TRAP PRIMARY LEVEL ELEMENT: BUBBLER PRIMARY LEVEL ELEMENT: ELECTRODE PRIMARY LEVEL ELEMENT: FLOAT SWITCH PRIMARY LEVEL ELEMENT: FLUID PRIMARY LEVEL ELEMENT: INVERTED COLUMN													SINGLE LINE DESCRIPTION PRIMARY LEVEL ELEMENT: RADAR PRIMARY LEVEL ELEMENT: ULTRASONIC PRIMARY FLOW ELEMENT: FLUME PRIMARY FLOW ELEMENT: X = C - CORIOLIS X = M - MAGNETIC X = P - PROPELLER X = PT - PITOT TUBE X = R - ROTAMETER X = T - TURBINE X = TH - THERMAL X = U - ULTRASONIC X = D - DENSITY PRIMARY FLOW ELEMENT: ORIFICE PLATE PRIMARY FLOW ELEMENT: VENTURI TUBE PRIMARY FLOW ELEMENT: WEIR PULSATION DAMPENER PUMP: CENTRIFUGAL PUMP: DIAPHRAGM PUMP: METERING PUMP: PLUNGER PUMP: PERISTALTIC TUBE METERING PUMP: PROGRESSIVE CAVITY PUMP: RECIPROCATING PUMP: ROTARY PUMP: SCREW PUMP: SUBMERSIBLE PUMP: VERTICAL LIFT PIPE REDUCER: CONCENTRIC PIPE REDUCER: ECCENTRIC (FOT, FOB) ROTARY CHEMICAL FEEDER RUPTURE DISK SAMPLE PORT SIGHT GLASS SLIDE GATE SLUICE GATE STRAINER: WYE TYPE													CHEMICAL INJECTION POINT PIPE DESIGNATOR CONTINUATION TAG EQUIPMENT / VALVE TAG KEY TAG CHEMICAL DWG NO. PIPE SIZE FLOW STREAM CONTINUATION FROM DWG NO. CONTINUATION TO DWG NO. UNIQUE IDENTIFIER XXX-XX-XXXX X												
																										LINE SYMBOLS																																						
																										PIPE ABOVE OR BELOW GROUND PIPE UNDERNEATH SLAB OR STRUCTURE FUTURE EXISTING DEMO																																						
																										PROCESS LINE SYMBOLS																																						
																										PRIMARY PROCESS FLOW IN PIPE SECONDARY PROCESS FLOW IN PIPE PRIMARY PROCESS FLOW IN CHANNEL SECONDARY PROCESS FLOW IN CHANNEL																																						
</																																																																

Plot Date: 16-OCT-2025 2:15:46 PM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: iveloz



- GENERAL NOTES:**
- EXISTING PIPING SYSTEMS ARE NOT SHOWN IN THEIR ENTIRETY. LOCATION AND SIZE OF PIPING SHALL BE FIELD VERIFIED AS REQUIRED TO FACILITATE NEW WORK.
 - CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING FIXTURES, SUPPORTS, AND EQUIPMENT AS REQUIRED TO FACILITATE NEW WORK.
 - FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO NEW WORK. COORDINATE ALL NEW WORK WITH OWNER/ OTHER CONTRACTOR WITH ONGOING PUMP STATION IMPROVEMENTS PROJECT WORK.
- KEY NOTES:**
- INSTALL TROJAN UVSIGNA SYSTEM PER UV EQUIPMENT MANUFACTURER. REFER TO SPECIFICATION 46_66_85 FOR DESIGN REQUIREMENTS.
 - INLET DEFLECTOR PLATE SUPPLIED BY THE CONTRACTOR. SEE STRUCTURAL DRAWINGS FOR DESIGN REQUIREMENTS.
 - SST GUIDE BAFFLE. SEE STRUCTURAL DRAWINGS FOR DESIGN REQUIREMENTS.
 - INLET BAFFLE PER UV MANUFACTURER. REFER TO SPECIFICATION 46_66_85 FOR DESIGN REQUIREMENTS AND STRUCTURAL DRAWINGS.
 - IRRIGATION PUMP NO. 4 INSTALLATION AND ELECTRICAL WORK COMPLETED BY KELLER ASSOCIATES UNDER EFFLUENT PUMP STATION PROJECT. REFER TO SPECIFICATION SECTION 01_14_00.
 - NEW UV TRANSMITTANCE ANALYZER.
 - ALUMINUM PLANKS TO BE INSTALLED OVER AREA ABOVE UV BANKS. SEE STRUCTURAL DRAWINGS.
 - UV CABLE ROUTING TRANSITIONS FROM OVERHEAD HANGING TRAY TO CABLE TROUGH IN MAINTENANCE PLATFORM. CABLE MANAGEMENT BRACKETS TO BE POSITIONED ALONG CABLE TROUGH PER UV SYSTEM SUPPLIER.
 - MAINTENANCE PLATFORM DRAIN. PLATFORM FLOOR SLOPED TO DRAIN. SEE STRUCTURAL DRAWINGS.
 - NEW LEVEL SENSOR.
 - CABLE TROUGH COVERED BY ALUMINUM PLANKS. SEE STRUCTURAL DRAWINGS FOR MORE DETAIL.
 - ALUMINUM PLANKS COVER THE UV CHANNEL DOWNSTREAM OF UV SYSTEM. SEE STRUCTURAL DRAWINGS FOR MORE DETAIL.
 - NEW LEVEL CONTROL PANEL (LCP) SUPPLIED BY UV SYSTEM MANUFACTURER.
 - NEW HYDRAULIC SYSTEM CENTER (HSC) SUPPLIED BY UV MANUFACTURER.
 - REFER TO ELECTRICAL DRAWINGS FOR MORE INFORMATION ON POWER, WIRING, AND ADDITIONAL REQUIREMENTS.

DESIGNED KW DRAWN LZV CHECKED DATE OCTOBER 2025				REGISTERED PROFESSIONAL ENGINEER OREGON JULY 12, 2022 TYLER E. KANE EXPIRES: 06/30/27		Digitally signed by Tyler E. Kane Corollo Engineers, Inc. Date: 2025.10.15 13:58:45 -0700		carollo		SANDY OREGON		CITY OF SANDY WWTP UV IMPROVEMENTS MECHANICAL EFFLUENT FILTRATION AND DISINFECTION PLAN		VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		JOB NO. 202880 DRAWING NO. M01 SHEET NO. 27 OF 58	
REV	DATE	BY	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	

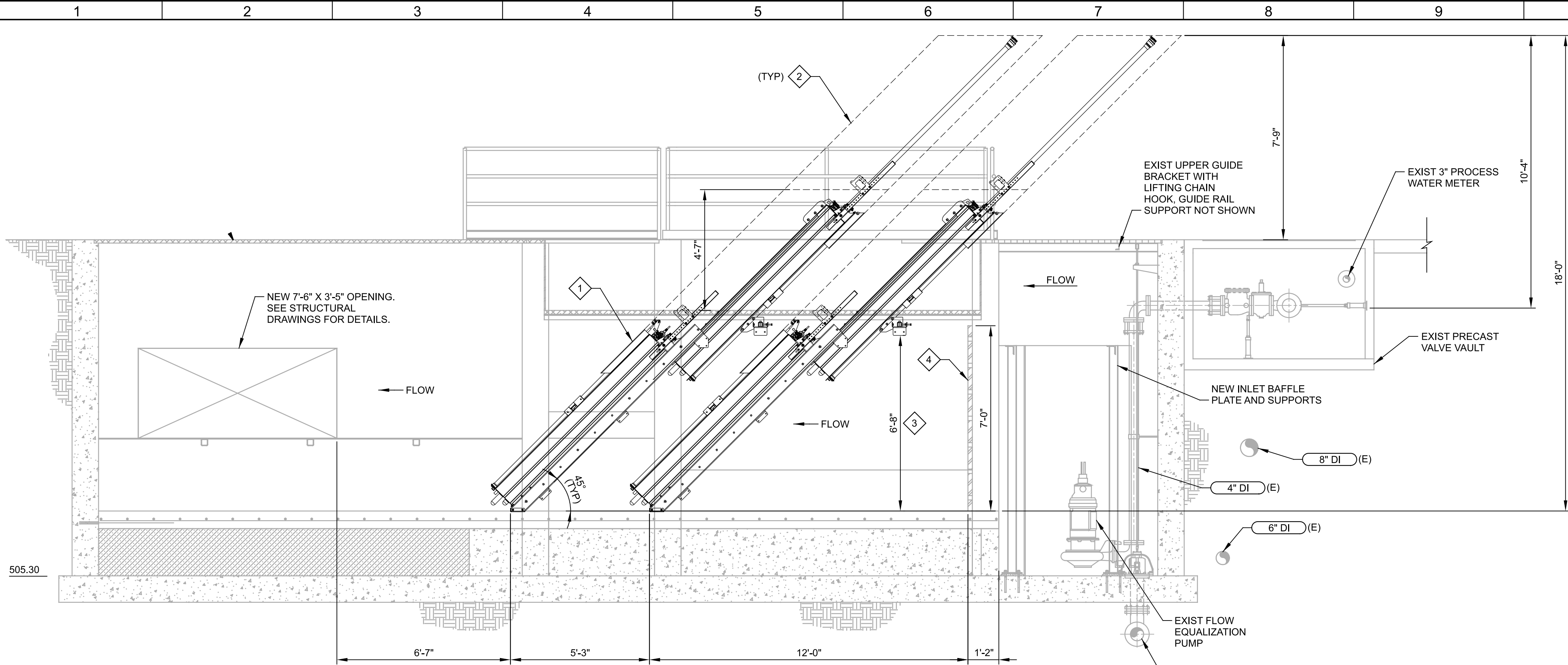
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Plot Date: 15-OCT-2025 2:15:30 PM

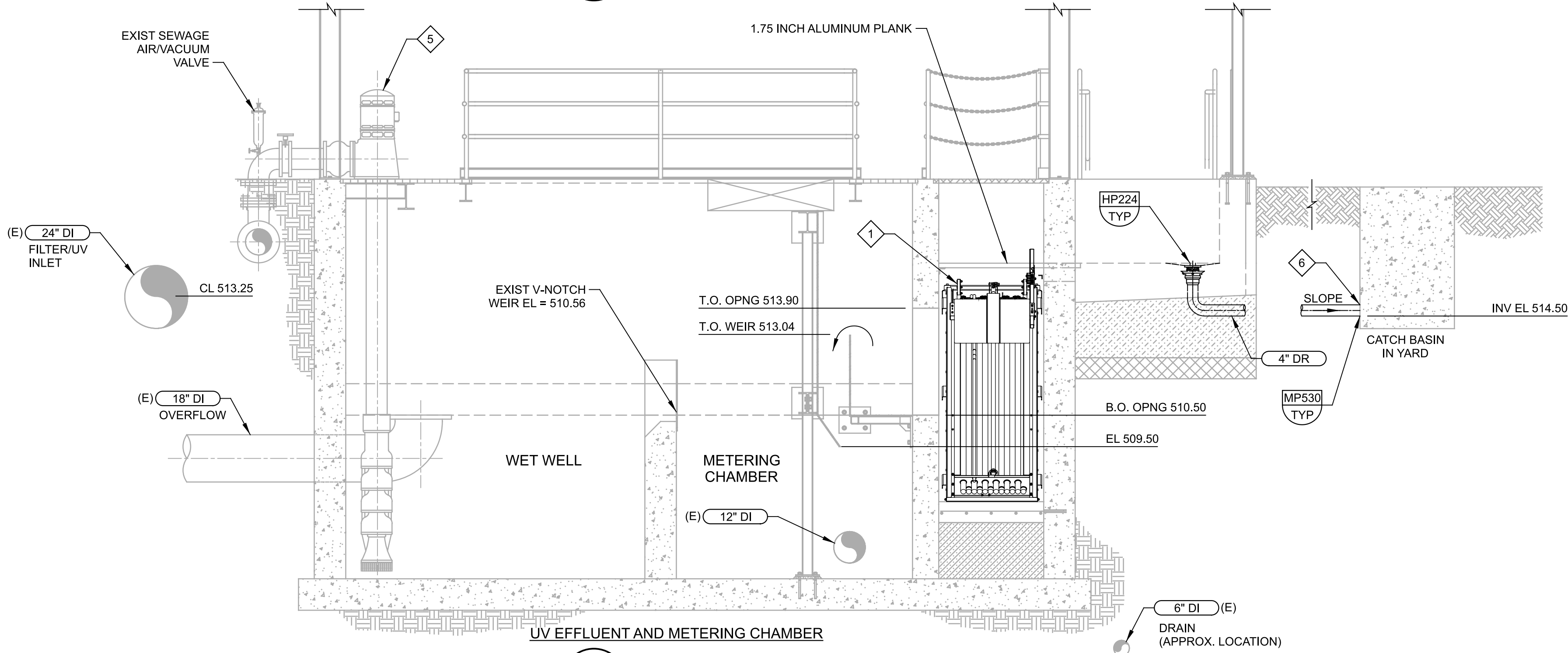
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Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo Std_Pen_v0905.pen PlotScale: 1:1

LAST SAVED BY: ivelo



B SECTION
M01
SCALE: 3/8"=1'-0"
FILE: 202880_00M0301



C SECTION
M01
SCALE: 3/8"=1'-0"
FILE: 202880_00M0301

GENERAL NOTES:

- EXISTING PIPING SYSTEMS ARE NOT SHOWN IN THEIR ENTIRETY. LOCATION AND SIZE OF PIPING SHALL BE FIELD VERIFIED AS REQUIRED TO FACILITATE NEW WORK.
- CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING FIXTURES, SUPPORTS, AND EQUIPMENT AS REQUIRED TO FACILITATE NEW WORK.

KEY NOTES:

- INSTALL TROJAN UVSIGNA SYSTEM PER UV EQUIPMENT MANUFACTURER. REFER TO SPECIFICATION 46_66_85 FOR DESIGN REQUIREMENTS.
- CLEARANCE REQUIRED FOR LAMP REMOVAL AND SERVICING.
- REQUIRED DISTANCE TO BOTTOM EDGE OF BANK SUPPORT (TYP). CONFIRM EXACT DIMENSION WITH MANUFACTURER.
- INLET BAFFLE PLATE. REFER TO SPECIFICATION 46_66_85 FOR DESIGN REQUIREMENTS AND STRUCTURAL DRAWINGS.
- IRRIGATION PUMP NO. 4 INSTALLATION AND ELECTRICAL WORK COMPLETED BY KELLER ASSOCIATES UNDER EFFLUENT PUMP STATION PROJECT.
- ROUTE DRAIN TO CATCH BASIN AND INSTALL TIDEFLEX CIL-SERIES 37G IN-LINE CHECK VALVE AT CATCH BASIN ENTRANCE.

REV	DATE	BY	DESCRIPTION

DESIGNED KW
DRAWN LZV
CHECKED
DATE OCTOBER 2025



Digitally signed by Tyler E. Kane
DN: cn=Tyler E. Kane, o=Carollo Engineers, Inc., ou=Carollo Engineers, Inc., email=tyler.kane@carollo.com, c=US
Date: 2025.10.15 13:55:30 -0700



CITY OF SANDY
WWTP UV IMPROVEMENTS
MECHANICAL
EFFLUENT FILTRATION AND DISINFECTION
SECTIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
202880
DRAWING NO.
M02
SHEET NO.
28 OF 58

Plot Date: 20-OCT-2025 11:07:02 AM

User: svcPW

PlotScale: 1:1

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Sig_Pen_v0905.pen

LAST SAVED BY: ivelo

1 2 3 4 5 6 7 8 9 10 11 12 13

A

B

C

D

E

F

G

GENERAL NOTES:

1. EXISTING CONDITIONS:

a. FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS, AND CONDITIONS PRIOR TO DEMOLITION, SHOP DRAWING PREPARATION, AND FABRICATION.

b. NOTIFY ENGINEER IMMEDIATELY IF CONDITIONS NOT COVERED BY THESE DRAWINGS ARE EXPOSED DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO:

i. ELEVATIONS, SIZES, OR DIMENSIONS DIFFERING FROM THE CONTRACT DOCUMENTS.

ii. DAMAGE OR DETERIORATION TO MATERIALS AND COMPONENTS.

iii. CONDITIONS OR DETAILS DIFFERENT FROM THOSE SHOWN ON THE DRAWINGS.
2. MOUNT THERMOSTAT AT 60" AFF AND LABEL WITH ITS CONTROLLING DEVICE.

KEY NOTES:

1. HEAT PUMP ON EQUIPMENT PAD PER DETAIL SD503/TYP.
2. MINI-SPLIT CASSETTE AIR HANDLING UNIT. UNIT SHALL BE SUSPENDED FROM ROOF JOISTS AND INSTALLED IN EXISTING CEILING PER MANUFACTURER REQUIREMENTS.
3. 3/4-INCH PVC CONDENSATE DRAIN. ROUTE TO 18" DRYWELL. SLOPE DRAIN AT 1/4" PER FOOT IN THE DIRECTION OF FLOW. INSULATE PER CONTRACT DOCUMENT REQUIREMENTS. ROUTE LINE DOWN INTERIOR WALL BEFORE PENETRATING TO THE EXTERIOR.
4. REFRIGERANT LINES. ROUTE PER MANUFACTURER REQUIREMENTS AND INSULATE PER CONTRACT DOCUMENT REQUIREMENTS. DO NOT ROUTE ABOVE ELECTRICAL EQUIPMENT. LINES ARE TO BE ROUTED DOWN INTERIOR OF WALL BEFORE PENETRATING TO THE EXTERIOR.
5. MANUFACTURER REQUIRED CLEARANCE. DO NOT BLOCK.

KEY NOTES:

1.

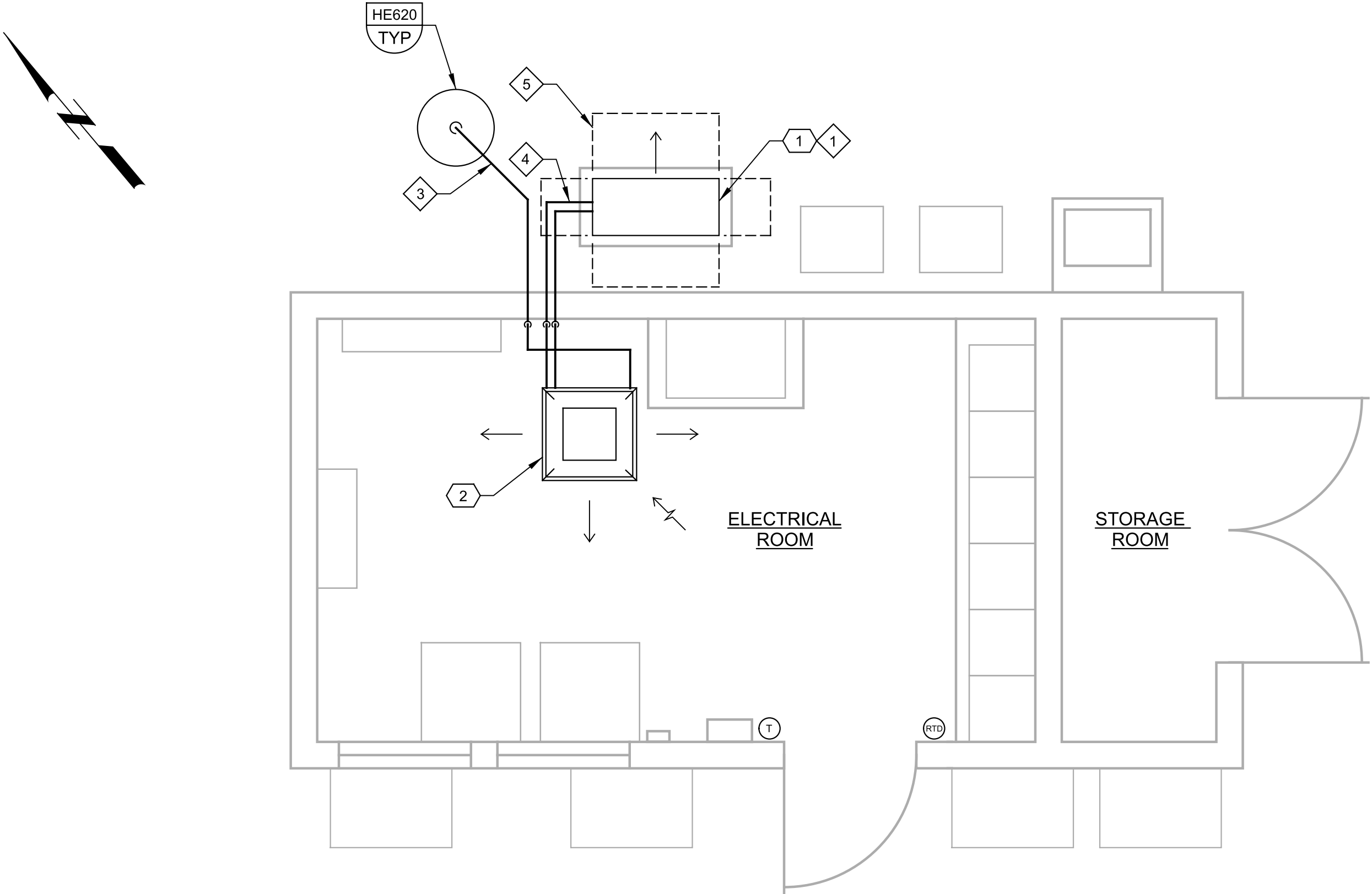
HP-1

 HEAT PUMP
2.

AHU-1

 AIR HANDLING UNIT

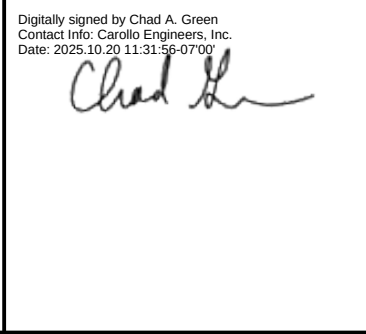
HEAT PUMP SCHEDULE																					
EQUIPMENT TAG	AREA SERVED	AIRFLOW (CFM)	WEIGHT (LB)	ESP (IN. W.C.)	COOLING DATA							HEATING DATA				FILTER DATA	ELECTRICAL DATA			BASIS OF DESIGN	NOTES
					OA DB (°F)	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	NET TOTAL CAPACITY (MBH)	NET SENSIBLE CAPACITY (MBH)	OA DB (°F)	EAT DB (°F)	LAT DB (°F)	MECHANICAL HEATING CAPACITY (MBH)		TYPE	VOLTAGE	PHASE		
AHU-1	ELECTRICAL ROOM	PER MFR	57	PER MFR	-	80	67	PER MFR	PER MFR	42	33.2	-	70	PER MFR	45	PER MFR	208	1	1	TRANE TPLA0A0421EA80A	1,2
HP-1	ELECTRICAL ROOM	PER MFR	214	-	95	-	-	-	-	42	33.2	47	-	-	45		208	1	25	TRANE TRUZA0421KA70NA	3,4
NOTES: 1 CEILING SUSPENDED MINI-SPLIT CASSETTE. 2 HARD-WIRED THERMOSTAT PROVIDED BY UNIT MANUFACTURER. 3 ELECTRICAL CONTRACTOR WILL PROVIDE A NEMA 4X DISCONNECT. 4 PROVIDE WITH COATING FOR MARINE ENVIRONMENTS.																					



A PLAN
SCALE: 3/8"=1'-0"
FILE: 202880_H0104

REV	DATE	BY	DESCRIPTION
1			
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3			
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DESIGNED KJC
DRAWN JKA
CHECKED CAG
DATE OCTOBER 2025



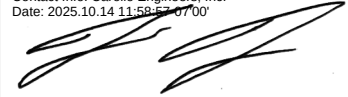
CITY OF SANDY	
WWTP UV IMPROVEMENTS	
HVAC	
FILTRATION/DISINFECTION BASIN ELECTRICAL ROOM	
PLAN & EQUIPMENT SCHEDULE	

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202880
DRAWING NO. H01
SHEET NO. 30 OF 58

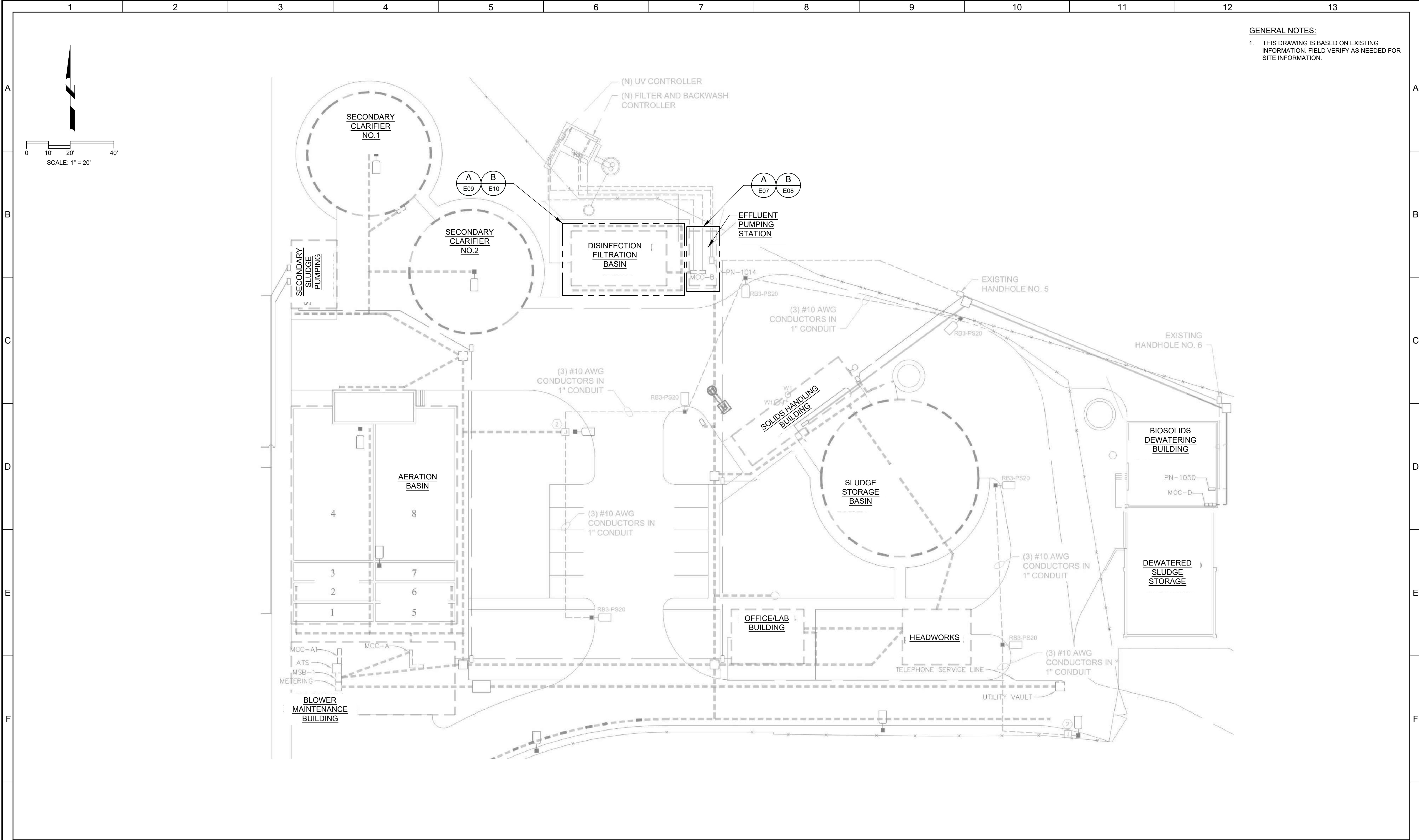
	1	2	3	4	5	6	7	8	9	10	11	12	13					
	ELECTRICAL PLAN SYMBOLS							ELECTRICAL ONE-LINE SYMBOLS										
	IDENTIFICATION SYMBOLS		SWITCHES/RECEPTACLES		RACEWAY		MEDIUM VOLTAGE		LOW VOLTAGE		MISCELLANEOUS							
A	EQUIP # EQUIPMENT AND INSTRUMENT IDENTIFICATION ■ EQUIPMENT/INSTRUMENT LOCATOR b X a c LUMINAIRE IDENTIFICATION a = CIRCUIT DESIGNATION b = DEVICE SWITCHED FROM c = MOUNTING HEIGHT IN FEET TO BOTTOM OF FIXTURE X = LUMINAIRE TYPE, REFER TO THE LUMINAIRE SCHEDULE XXXX CONDUIT IDENTIFICATION XXXX = CONDUIT NUMBER, REFER TO CONDUIT SCHEDULE UNLESS OTHERWISE NOTED, GROUPED CONDUITS ARE LABELED LEFT TO RIGHT OR TOP TO BOTTOM. X INDICATES KEYNOTE X (PERTAINS ONLY TO SHEET WHERE NOTE IS FOUND) A DISCONNECT SWITCH A = TYPE, REFER TO DISCONNECT SCHEDULE ◻ CAMERA		S a b c SINGLE POLE SWITCH a = CIRCUIT DESIGNATION b = DEVICE SWITCHED DESIGNATION c = TYPE 2 = DOUBLE POLE SWITCH 3 = THREE-WAY SWITCH 3P = THREE POSITION SWITCH 4 = FOUR-WAY SWITCH K = KEY OPERATED SWITCH F = SWITCH AND FUSE/STAT HOLDER P = SWITCH AND PILOT LIGHT T = THERMOSTAT D = DIMMER SWITCH L = LOW VOLTAGE LIGHT SWITCH M = MANUAL MOTOR STARTER N = NETWORKED SINGLE OR MULTIPLE SWITCH LOCATIONS WP = WEATHER PROOF REFER TO ABBREVIATIONS LEGEND FOR ALL OTHER DESIGNATIONS. b X a c OCCUPANCY SENSOR X = REFERENCE LIGHTING CONTROL COMPONENT SCHEDULE a = CIRCUIT DESIGNATION b = DEVICE SWITCHED DESIGNATION c = MOUNTING HEIGHT IN FEET TO BOTTOM OF SENSOR PE PHOTOCELL a b SWITCH AND SINGLE RECEPTACLE a = CIRCUIT DESIGNATION b = DEVICE TYPE DESIGNATION a b DUPLEX RECEPTACLE a b QUADRUPLEX RECEPTACLE a b IN FLOOR DUPLEX RECEPTACLE a b IN FLOOR QUADRUPLEX RECEPTACLE a b DUPLEX RECEPTACLE w/SPLIT WIRE a b DEDICATED RECEPTACLE a b SPECIAL PURPOSE RECEPTACLE B a WELDING RECEPTACLE a = CIRCUIT DESIGNATION b = DISCONNECT TYPE a TWIST LOCK RECEPTACLE a = AMP RATING K TELEPHONE OUTLET a DATA COMMUNICATIONS OUTLET a = NETWORK SWITCH		FO/N N CONDUIT SIZE AND CONDUCTORS INDIVIDUAL CONDUCTORS W"C-(3-X (Ø), 1-Y (N) & 1-Z (G)) W"C (WHERE INDICATED): W = CONDUIT TRADE SIZE 3-X (Ø): 3 = QUANTITY X = SIZE OF CONDUCTORS (Ø) = DESIGNATES PHASE CONDUCTORS 1-Y (N) (WHERE INDICATED): 1 = QUANTITY Y = SIZE OF CONDUCTORS (N) = DESIGNATES NEUTRAL CONDUCTORS 1-Z (G) (WHERE INDICATED): 1 = QUANTITY Z = SIZE OF CONDUCTORS (G) = DESIGNATES GROUND CONDUCTORS U(3-X (Ø) & 1-X (G)) U = NUMBER OF PARALLEL RUNS VFD CONDUCTORS U([N/C-X (Ø) & INTEGRAL (G)]:VFD) U = NUMBER OF PARALLEL RUNS N/C = NUMBER OF PHASE CONDUCTORS IN CABLE X = SIZE OF CONDUCTORS VFD = VFD CABLE MULTI CONDUCTOR CABLES K/2/C#16S K (WHERE INDICATED) = NUMBER OF PAIRS 2/C#16S = TWO CONDUCTOR, 16 GAUGE, TWISTED SHIELDED PAIR K/3/C#16S K (WHERE INDICATED) = NUMBER OF TRIPLETS 3/C#16S = THREE CONDUCTOR, 16 GAUGE, TWISTED SHIELDED TRIPLETS U([N/C-X (Ø) & INTEGRAL (G)]:MC) U = NUMBER OF PARALLEL RUNS MC = MULTICONDUCTOR CABLE N/C = NUMBER OF PHASE CONDUCTORS IN THE CABLE X = SIZE OF CONDUCTORS FIBER OPTIC CABLES FO/N N = NUMBER OF INDIVIDUAL FIBERS		EXPOSED CONDUIT BREAK AND CONTINUATION IN CONDUIT RUN EXPOSED CONDUIT HIDDEN BEHIND WALLS, FLOORS OR OTHER STRUCTURES UNDERGROUND CONDUIT, DIRECT BURIED OR IN DUCT BANK CONDUIT IN SLAB CONDUIT VERTICAL CHANGE IN DIRECTION CONDUIT CAP JUNCTION BOX CONDUIT SEAL CONDUIT TEE DUCT BANK APPROXIMATE DIMENSIONS SHOWN ON DUCT BANK SECTIONS		a b 52 CIRCUIT BREAKER, MEDIUM VOLTAGE a = CIRCUIT BREAKER NUMBER b = FRAME SIZE a b ANSI RELAY DEVICE a = ANSI DEVICE FUNCTION b = QUANTITY □ ⌵ MEDIUM VOLTAGE DISCONNECT SWITCH NON-FUSED CUT OUT □ ⌵ MEDIUM VOLTAGE DISCONNECTING FUSE SINGLE FUSE CUT OUT □ ⌵ MEDIUM VOLTAGE DISCONNECTING FUSE DOUBLE FUSE CUT OUT □ ⌵ MEDIUM VOLTAGE SINGLE FUSE □ ⌵ MEDIUM VOLTAGE DOUBLE FUSE ◆ MEDIUM VOLTAGE LIVE FRONT TERMINATOR ◆ MEDIUM VOLTAGE ELBOW ⌵ MEDIUM VOLTAGE TEE ⊕ MEDIUM VOLTAGE CONTACTOR ⊕ MEDIUM VOLTAGE STARTER ⌵ ⌵ MOV-ELBOW ARRESTER		e a b c d f LOW VOLTAGE CIRCUIT BREAKER a = TYPE MCP = MOTOR CIRCUIT PROTECTOR TM = THERMAL MAGNETIC SS = SOLID STATE b = FRAME SIZE (MANUFACTURER TO DETERMINE FRAME SIZE UNLESS INDICATED) c = NUMBER OF POLES d = TRIP SETTING (AT = AMP TRIP) (AC = MCP CONTINUOUS RATING) e = DESIGNATION f = INTERRUPTING RATING ⊕ ⊕ LOW VOLTAGE CIRCUIT BREAKER AUXILIARY OPERATOR * = S = SHUNT TRIP = G = GROUND FAULT INTERRUPTER = V = SOLENOID KEY RELEASE A DISCONNECT SWITCH A = TYPE, REFER TO DISCONNECT SCHEDULE B FUSED DISCONNECT SWITCH B = TYPE, REFER TO DISCONNECT SCHEDULE b = FUSE RATING ⌵ FUSE ----- EQUIPMENT ENCLOSURE b a c d MOTOR STARTER/DRIVE a = STARTER TYPE VFD-6 = 6-PULSE VFD VFD-18 = 18-PULSE VFD VFD-RH = REDUCED HARMONIC VFD (18-PULSE OR ACTIVE FRONT END AS DEFINED IN THE SPECIFICATIONS) RVSS = REDUCED VOLTAGE SOLID STATE STARTER RVAT = REDUCED VOLTAGE AUTO TRANSFORMER a/B = DEVICE WITH BYPASS STARTER REFER TO THE SPECIFICATIONS FVNR = FULL VOLTAGE NON-REVERSING FVR = FULL VOLTAGE REVERSING REFER TO ABBREVIATIONS LEGEND FOR ALL OTHER DESIGNATIONS b = VFD INPUT OPTIONS LL = LINE REACTOR PHF = PASSIVE HARMONIC FILTER c = VFD LR = LOAD REACTOR DV/DT = XX SINEWAVE = XX c = FVNR SIZE # = NEMA STARTER SIZE d = NETWORK PROTOCOL ENET = ETHERNET IP MB = MODBUS		HP MOTOR HP = HORSEPOWER RATING FULL LOAD AMPS AS NOTED a b PACKAGED EQUIPMENT LOAD RATING AS INDICATED a = RATED LOAD b = UNIT(HP, KW, KVA) AS INDICATED f a b c d e g h TRANSFORMER a = DEVICE I.D. b = KVA RATING c = NUMBER OF PHASES d = PRIMARY VOLTAGE e = SECONDARY VOLTAGE f,g = CONNECTION TYPE SYMBOL h = IMPEDANCE ⌵ GROUNDING WYE CONNECTION Δ DELTA CONNECTION a b c d e ENGINE-GENERATOR RATINGS AS INDICATED ON THE DRAWINGS a = KVA/KW b = VOLTAGE/CONNECTION c = PHASE d = WIRE e = PF a b ⌵ CURRENT TRANSFORMER WITH SHORTING TERMINAL BLOCK a = QUANTITY b = RATIO c a d b POTENTIAL TRANSFORMER a = QUANTITY b = RATIO c,d = CONNECTION TYPE SYMBOL SSM SOLID STATE MULTIFUNCTION METER ATP AMPERE TEST POINT VTP VOLTAGE TEST POINT ⌵ ⌵ UTILITY METER ⌵ ⌵ LIGHTNING ARRESTER SPD SURGE PROTECTIVE DEVICE ⌵ DRAWOUT CONNECTION ⌵ GROUND ⌵ CAPACITOR ⌵ ⌵ ⌵ ⌵ BATTERY ⌵ K KIRK KEY INTERLOCK ⌵ LOAD BANK					
B																		
C	LUMINAIRES																	
D	LINEAR FIXTURE 2' X 2' LAY-IN TROFFER 2' X 4' LAY-IN TROFFER LUMINAIRE POLE MOUNTED LUMINAIRE, EMERGENCY BATTERY-POWERED LUMINAIRE, EMERGENCY/EXIT BATTERY-POWERED LUMINAIRE, EMERGENCY BATTERY-POWERED REMOTE LUMINAIRE, SURFACE OR PENDANT MOUNTED LUMINAIRE, WALL MOUNTED LUMINAIRE, FLOOD/SPOT LUMINAIRE, EXIT ONE OR TWO FACES AS INDICATED. ARROW POINTS IN DIRECTION OF EGRESS.																	
E																		
F																		
G			DESIGNED CE DRAWN CE CHECKED BJT DATE OCTOBER 2025		REGISTERED PROFESSIONAL ENGINEER OREGON NOV. 12, 2024 TYLER DOUGLAS TROUP EXPIRES: 06/30/26		Digitally signed by Tyler D. Troup Contact info: Carollo Engineers, Inc. Date: 2025.10.14 13:49:00 -07'00'		carollo		SANDY OREGON		CITY OF SANDY WWTP UV IMPROVEMENTS ELECTRICAL ELECTRICAL LEGENDS		VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		JOB NO. 202880 DRAWING NO. GE01 SHEET NO. 31 OF 58	
	1	2	3	4	5	6	7	8	9	10	11	12	13					
	LAST SAVED BY: CGifford																	

LAST SAVED BY: CGifford

ABBREVIATIONS															POWER DEVICE FUNCTION NUMBERS														
A	A	AMP	G	GROUND / EQUIPMENT GROUND / GROUND FAULT	O	OPEN OR OPENED	V	VOLT	1	MASTER ELEMENT	81	FREQUENCY RELAY																	
	ABS	ABSOLUTE	GEN	GENERATOR	OH	OVERHEAD	VA	VOLT AMPERE	2	TIME-DELAY STARTING OR CLOSING RELAY	82	DC LOAD MEASURING RECLOSING RELAY																	
	AC	ALTERNATING CURRENT	GRC	GALVANIZED STEEL RIGID CONDUIT	OL	OVERLOAD RELAY	VAR	VARMETER	3	CHECKING OR INTERLOCKING RELAY	83	AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY																	
	ACK	ACKNOWLEDGE	GFCI	GROUND FAULT CIRCUIT INTERRUPTER (RECEPTACLE)			VCP	VENDOR CONTROL PANEL	4	MASTER CONTACTOR	84	OPERATING MECHANISM																	
	ACTR	ACTUATOR	GFI	GROUND FAULT INTERRUPTER (BREAKER)	P	POLE	VFD	VARIABLE FREQUENCY DRIVE	5	STOPPING DEVICE	85	PILOT COMMUNICATIONS, CARRIER OR PILOT-WIRE RELAY																	
	AF	AMP FRAME	GFR	GROUND FAULT RELAY	PA	PUBLIC ADDRESS	VHF	VERY HIGH FREQUENCY	6	STARTING CIRCUIT BREAKER	86	LOCKOUT RELAY																	
	AFC	AUTOMATIC FREQUENCY CONTROL			PB	PUSHBUTTON / PULL BOX	VM	VOLTMETER	7	ANODE CIRCUIT BREAKER	87	DIFFERENTIAL PROTECTIVE RELAY																	
	AIC	AMP INTERRUPTING CAPACITY	H	HOT-LEG	PCS	PVC COATED GALVANIZED STEEL CONDUIT	VP	VAPORPROOF	8	CONTROL POWER DISCONNECTING DEVICE	88	AUXILIARY MOTOR OR MOTOR GENERATOR																	
	AM	AMMETER	HF	HIGH FREQUENCY	PCM	PROCESS CONTROL MODULE	VR	VOLTAGE REGULATOR	9	REVERSING DEVICE	89	LINE SWITCH																	
	ANN	ANNUNCIATOR	HP	HORSEPOWER	PE	PHOTOCELL	VS	VOLTAGE SWITCH	10	UNIT SEQUENCE SWITCH	90	REGULATING DEVICE																	
B	ANT	ANTENNA	HPS	HIGH PRESSURE SODIUM	PF	POWER FACTOR	VT	VOLTAGE TRANSFORMER	11	MULTIFUNCTION DEVICE	91	VOLTAGE DIRECTIONAL RELAY																	
	APU	AUXILIARY POWER UNIT	HR	HOOR	PFCC	POWER FACTOR CORRECTION CAPACITOR	VTP	VOLTAGE TEST POINT	12	OVER-SPEED DEVICE	92	VOLTAGE AND POWER DIRECTIONAL RELAY																	
	ARM	ARMORED CABLE	HSTAT	HUMIDISTAT	PFR	PHASE FAILURE RELAY			13	SYNCHRONOUS-SPEED DEVICE	93	FIELD-CHANGING CONTACTOR																	
	AS	AMMETER SWITCH	HV	HIGH VOLTAGE	PH	PHASE	W	WATT / WEST	14	UNDER-SPEED DEVICE	94	TRIPPING OR TRIP-FREE RELAY																	
	ASYM	ASYMMETRICAL	HVAC	HEATING/VENTILATION/AIR CONDITIONING	PNL	PANEL	WT	WATER TIGHT																					
	AT	AMP TRIP	HZ	HERTZ	PPX	POWER PANEL NO. X	WP	WEATHER PROOF																					
	ATO	AUTOMATIC THROW OVER			PRI	PRIMARY																							
	ATP	AMMETER TEST POINT	I	INSTANTANEOUS / INTERMITTENT LOAD	PT	POTENTIAL TRANSFORMER	XFMR	TRANSFORMER																					
	ATS	AUTOMATIC TRANSFER SWITCH	IC	INTERRUPTING CAPACITY	PVC	POLYVINYL CHLORIDE RIGID PLASTIC CONDUIT																							
	AUTO XFMR	AUTOMATIC TRANSFORMER	IJB	INSTRUMENT JUNCTION BOX	PWR	POLYVINYL																							
C	AUX	AUXILIARY	IMC	INTERMEDIATE METAL CONDUIT																									
	AWG	AMERICAN WIRE GAGE	INST	INSTANTANEOUS	RAC	RIGID ALUMINUM CONDUIT																							
			INT	INTERLOCK	RECPT	RECEPTACLE																							
	B	BELL	INTERCOM	INTERCOMMUNICATION	REV	REVERSE																							
	BAT	BATTERY			RF	RADIO FREQUENCY																							
	BFG	BELOW FINISHED GRADE	J	JUNCTION BOX	RMS	ROOT MEAN SQUARED																							
	BHP	BRAKE HORSEPOWER			RVAT	REDUCED VOLTAGE AUTO TRANSFORMER																							
	BKR	BREAKER	K	KEY INTERLOCK	RVNR	REDUCED VOLTAGE NON-REVERSING																							
	BRF	BELOW RAISED FLOOR	KA	KILOAMP	RVSS	REDUCED VOLTAGE SOLID STATE																							
			KV	KILOVOLT																									
D	C	CONDUIT / CONTINUOUS LOAD	KVA	KILOVOLT AMPERE	S	SHIELD / SHORT-TIME																							
	CB	CIRCUIT BREAKER	KVAR	KILOVAR (REACTANCE)	SA	SURGE ARRESTER																							
	CCTV	CLOSED CIRCUIT TELEVISION	KW	KILOWATT	SC	SHORT CIRCUIT																							
	CCW	COUNTER CLOCKWISE	KWD	KILOWATT DEMAND	SDBC	SOFT DRAWN BARE COPPER																							
	CKT	CIRCUIT	KWH	KILOWATT HOUR	SFL	SUB FEED LUGS																							
	COAX	COAXIAL CABLE			SLT	SEALTIGHT LIQUIDTIGHT FLEXIBLE CONDUIT																							
	COM	COMMON	L	LONG-TIME	SM	SURFACE MOUNTED																							
	COMM	COMMUNICATION	L-B	LINE-BUS	SP	SINGLE POLE																							
	CPT	CONTROL POWER TRANSFORMER	L-G	LINE-GROUND	SPD	SURGE PROTECTIVE DEVICE																							
	CR	CONTROLLED RECEPTACLE	LA	LIGHTNING ARRESTOR	SPDT	SINGLE POLE DOUBLE THROW																							
E	CS	CONTROL SWITCH	LBL	LABEL	SPST	SINGLE POLE SINGLE THROW																							
	CT	CURRENT TRANSFORMER	LC	LIGHTING CONTACTOR	SPKR	SPEAKER																							
	CV	CONTROL VALVE	LCP- X	LOCAL CONTROL PANEL NO. X	SS	SOLID STATE																							
	CW	CLOCKWISE / COOL WHITE	LL	LEAD-LAG LOAD REACTOR	STB	SHORTING TERMINAL BLOCK																							
			LP	LIGHT POLE	SW	SWITCH																							
	DC	DIRECT CURRENT	LP - X	LIGHTING PANEL NO. X	SWBD	SWITCHBOARD																							
	DCS	DISTRIBUTED CONTROL SYSTEM	LTG	LIGHTING	SWGR	SWITCHGEAR																							
	DCU - X	DISTRIBUTED CONTROL UNIT NO. X	LV	LOW VOLTAGE	SYM	SYMMETRICAL																							
	DEMO	DEMOLITION	LVL	LEVEL																									
					TACH	TACHOMETER																							
F	DISC	DISCONNECT SWITCH			TB - X	TERMINAL BLOCK - UNIT X																							
	DM	DEMAND METER	M-X	MOTOR CONTROLLER NO. X	TC	THERMOCOUPLE / TIME CLOCK / TRAY CABLE																							
	DPDT	DOUBLE POLE DOUBLE THROW	MA	MILLIAMPERE	TD	TEMPERATURE DETECTOR RELAY																							
	DPST	DOUBLE POLE SINGLE THROW	MCA	MOTOR CIRCUIT AMPS	TE	TOTALLY ENCLOSED																							
	DS	DOOR SWITCH	MCC - X	MOTOR CONTROL CENTER NO. X	TEFC	TOTALLY ENCLOSED FAN COOLED																							
			MCP	MOTOR CIRCUIT PROTECTOR	TENV	TOTALLY ENCLOSED NON-VENTILATILATED																							
	E/G	EMERGENCY GENERATOR	MH	MANHOLE / MOUNTING HEIGHT	TERM	TERMINAL																							
	EM	EMERGENCY	MLO	MAIN LUGS ONLY	TJB	TERMINAL JUNCTION BOX																							
	EMT	ELECTRICAL METALLIC TUBING	MOD	MOTOR OPERATED DAMPER	TM	THERMAL MAGNETIC																							
	ENCL	ENCLOSURE	MOV	METAL OXIDE VARISTOR	TP	TWISTED PAIR																							
G	ENG	ENGINE	MPR	MOTOR PROTECTION RELAY																									
	ENT	ELECTRICAL NON-METALLIC TUBING	MS-X	MOTOR STARTER NO. X	TS	TEMPERATURE SWITCH																							
	EP	EXPLOSION PROOF	MSP	MOTOR STARTING PANEL	TS1W	TWO SPEED CONSEQUENT POLE, ONE WINDING																							
	ETM	ELAPSED TIME METER	MTO	MANUAL THROW OVER	TS2W	TWO SPEED SEPARATE WINDING																							
			MTR-X	MOTOR NO. X	TSTAT	THERMOSTAT																							
	F	SUB-FED	MTS	MANUAL TRANSFER SWITCH																									
	FA	FIRE ALARM	MV	MEGAVOLT	UHF	ULTRA HIGH FREQUENCY																							
	FACP	FIRE ALARM CONTROL PANEL	MVA	MEGAVOLT-AMPERES	UNG	UNGROUNDDED																							
	FDR	FEEDER	MVS	MEDIUM VOLTAGE SWITCH	UPS	UNINTERRUPTIBLE POWER SUPPLY																							
	FLA	FULL LOAD AMPS	MW	MEGAWATT	UVR	UNDER VOLTAGE RELAY																							
H	FLX	FLEXIBLE CONDUIT																											
	FO	FIBER OPTIC	N	NEUTRAL																									
	FRC	FIBERGLASS RIGID CONDUIT	NC	NORMALLY CLOSED																									
	FREQ	FREQUENCY	NEC	NATIONAL ELECTRICAL CODE																									
	FU	FUSE	NFC	NONMETALLIC FLEXIBLE CONDUIT																									
	FU SW	FUSED SWITCH	NL	NIGHT LIGHT																									
	FVNR	FULL VOLTAGE NON-REVERSING	NO	NORMALLY OPEN																									
	FVR	FULL VOLTAGE REVERSING	NP	NAMEPLATE																									
	FWD	FORWARD																											
	NOTES: 1. REFER TO SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL ABBREVIATIONS.																												
DESIGNED CE DRAWN CE CHECKED BJT DATE OCTOBER 2025 REGISTERED PROFESSIONAL ENGINEER 105999 OREGON NOV. 12, 2024 TYLER DOUGLAS TROUP Digitally signed by Tyler D. Troup Contact info: Carollo Engineers, Inc. Date: 2025.10.14 11:54:00 -0700    CITY OF SANDY WWTP UV IMPROVEMENTS ELECTRICAL ELECTRICAL ABBREVIATIONS VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY JOB NO. 202880 DRAWING NO. GE02 SHEET NO. 32 OF 58																													

PROJECT NO. 202880-100000

FILE NAME: 202880_GE02.dwg



GENERAL NOTES:
1. THIS DRAWING IS BASED ON EXISTING INFORMATION. FIELD VERIFY AS NEEDED FOR SITE INFORMATION.

REV	DATE	BY	DESCRIPTION

DESIGNED VK
DRAWN MNH
CHECKED BJT
DATE OCTOBER 2025

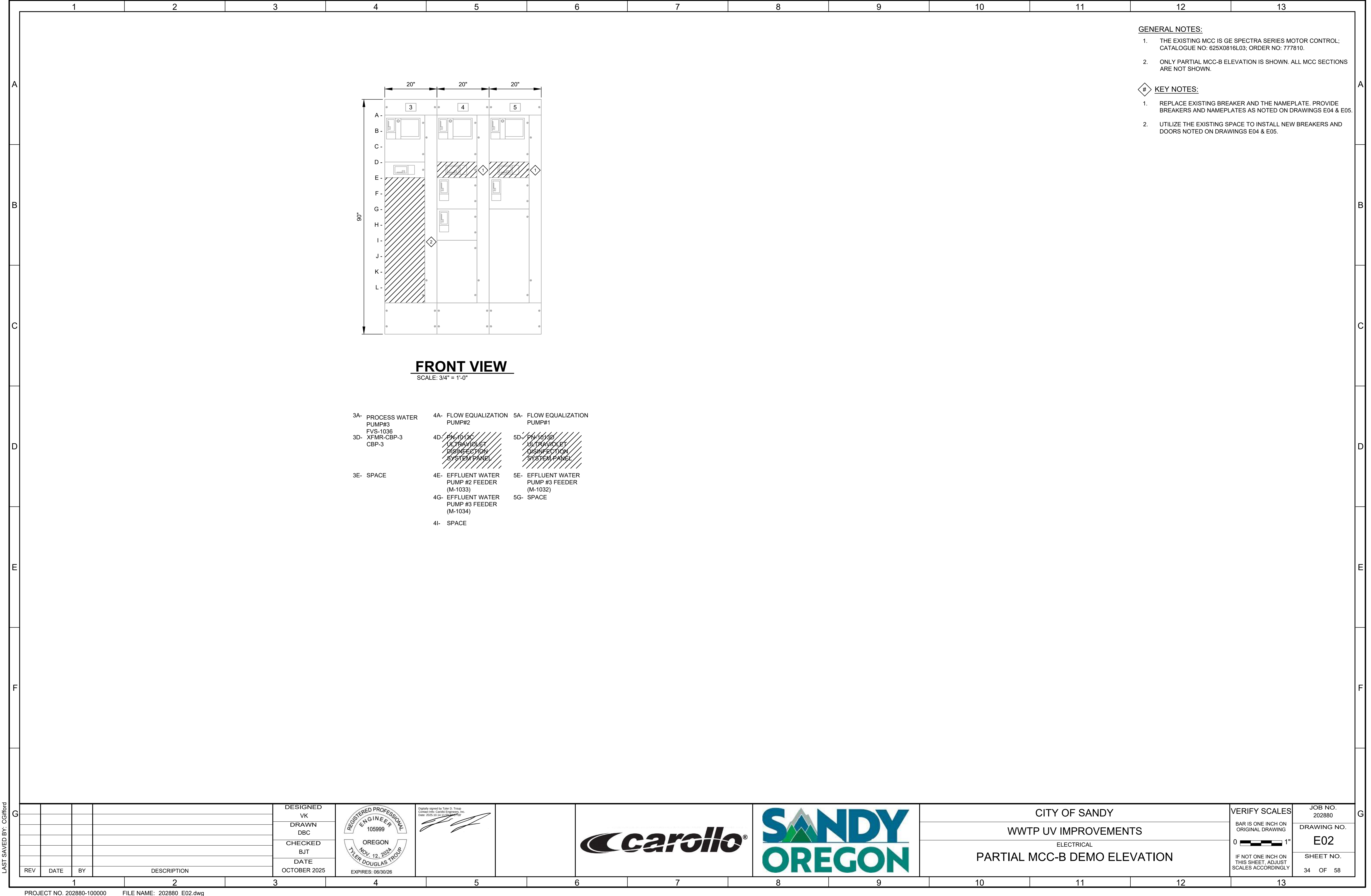
REGISTERED PROFESSIONAL ENGINEER OREGON NOV. 12, 2024 TYLER DOUGLAS TROTT
EXPIRES: 06/30/26

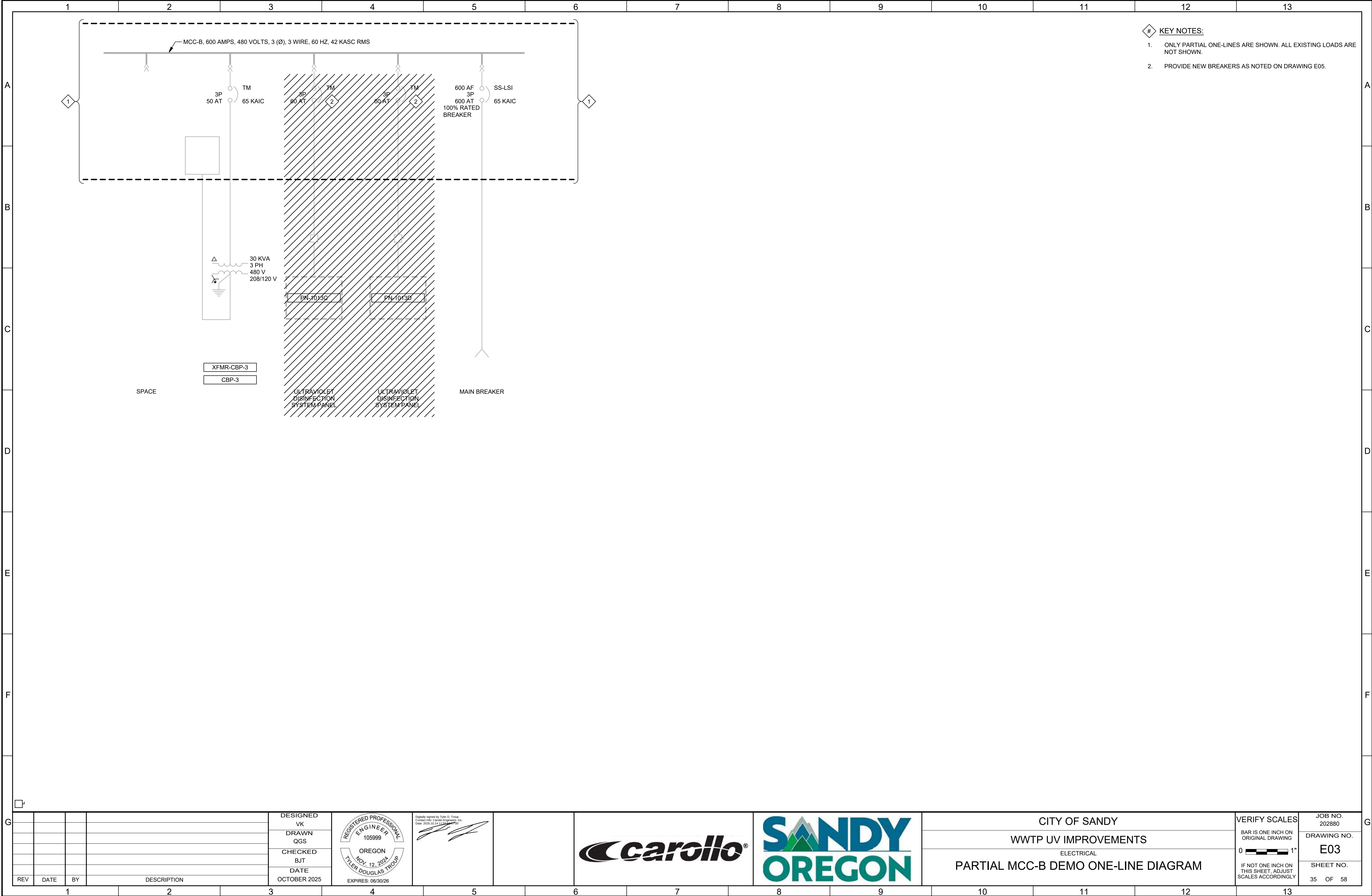
Digitally signed by Tyler D. Trott
Contact Info: Carollo Engineers, Inc.
Date: 2025.10.14 13:46:00 -0700

CITY OF SANDY	
WWTP UV IMPROVEMENTS	
ELECTRICAL	
ELECTRICAL SITE PLAN	

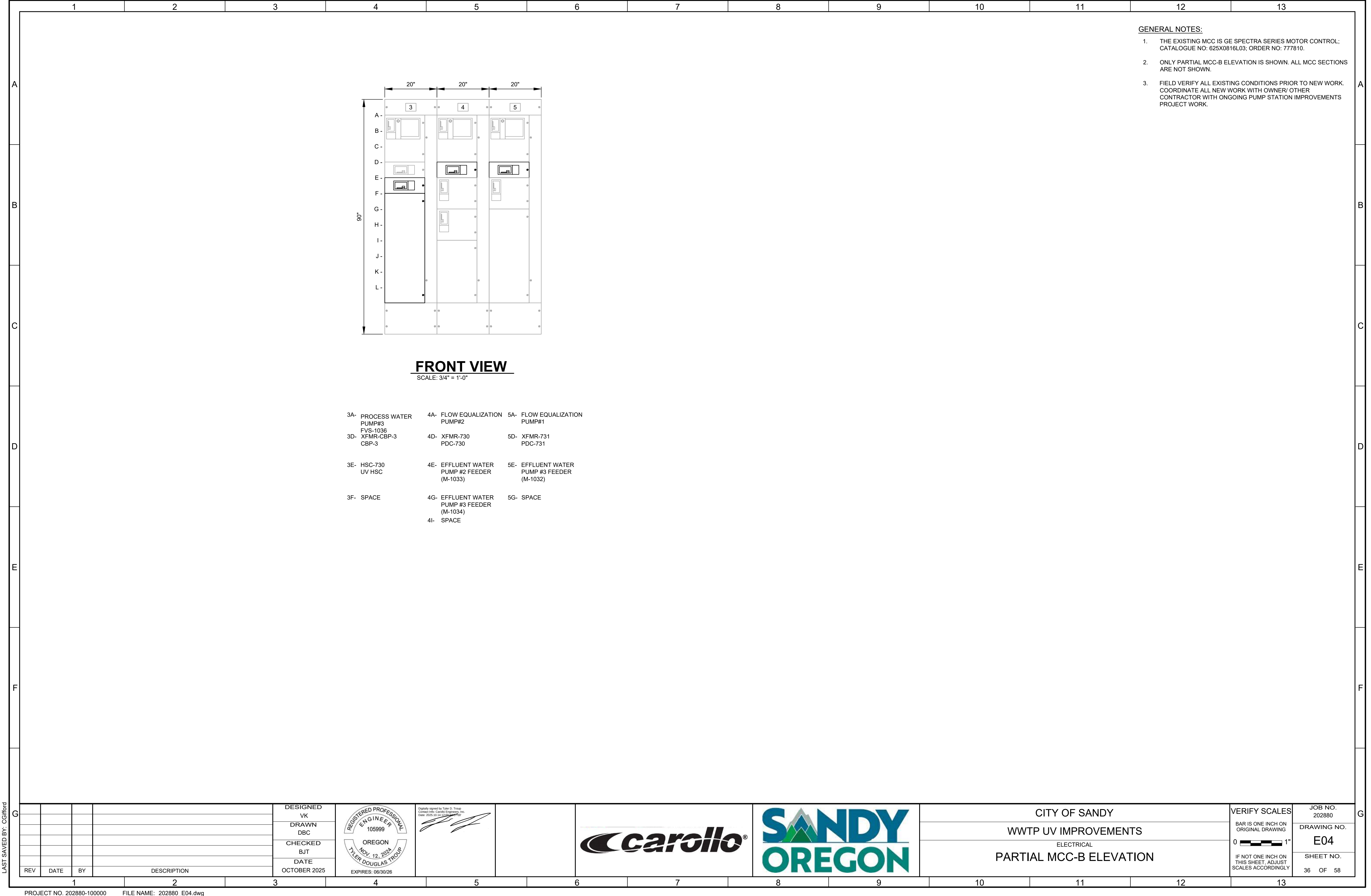
VERIFY SCALES	JOB NO. 202880
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. E01
0 1"	SHEET NO. 33 OF 58
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

LAST SAVED BY: CGifford





LAST SAVED BY: CGifford



LAST SAVED BY: CGifford

DEMO SCHEDULE

CBP-3(EXISTING)

6/3/2025

LOCATION: EFFLUENT PUMP STATION
VOLTS: 208/120
PHASE & WIRE: 3 PH 4W
INTERRUPT: 10 KAIC
OPTIONS:

NEMA: 1
FEED: BOTTOM
MTG: MCC
BUS RATING: 225
MAIN: CB
MAIN RATING: 125 AF 100 AT

PH A WEIGHTED VA 3839
PH B WEIGHTED VA 9950
PH C WEIGHTED VA 4950
EQUIP SIZING VA 29850
PANEL AMPS 82.9

I/C/S DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C/S
C LIGHTS, EXTERIOR	200	20A-1P	1	A	2	20A-1P	192	LIGHTS, CONTROL & STORAGE RM	C
C SPARE		20A-1P	3	B	4	20A-1P	360	RECEPT, CONTROL RM	C
C RECEPTACLES, ANALYZER	180	20A-1P	5	C	6	20A-1P	1200	MCP-730(UV MASTER CONTROL PANEL)	C
C EXHAUST FAN	79	20A-1P	7	A	8	20A-1P	1800	PN-1014	C
C HEATER	1800	20A-1P	9	B	10	20A-1P	3000	UV MECH SYSTEM	C
C COMPOSITE SAMPLE	180	20A-1P	11	C	12	20A-1P	500	UV SAMPLER	C
C HEAT TRACE	80	20A-1P	13	A	14	20A-1P	720	RECEPT, UV BASIN(4)	C
C SPARE		20A-1P	15	B	16	20A-1P	1100	RECEPT, FOR W3 HEATED ENCLOSURE	C
C SPACE		50A-1P	17	C	18	20A-1P	1100	RECEPT, FOR W3 HEATED ENCLOSURE	C
C SPACE		50A-1P	19	A	20				
C SPARE		20-2P	21	B	22	70A-3P		SPARE	
			23	C	24				

MODIFIED SCHEDULE

CBP-3(EXISTING)

6/3/2025

LOCATION: EFFLUENT PUMP STATION
VOLTS: 208/120
PHASE & WIRE: 3 PH 4W
INTERRUPT: 10 KAIC
OPTIONS:

NEMA: 1
FEED: BOTTOM
MTG: MCC
BUS RATING: 225
MAIN: CB
MAIN RATING: 125 AF 100 AT

PH A WEIGHTED VA 4490
PH B WEIGHTED VA 5575
PH C WEIGHTED VA 7075
EQUIP SIZING VA 21225
PANEL AMPS 58.9

I/C/S DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C/S
C LIGHTS, EXTERIOR	200	20A-1P	1	A	2	20A-1P	192	LIGHTS, CONTROL & STORAGE RM	C
C SPARE		20A-1P	3	B	4	20A-1P	360	RECEPT, CONTROL RM	C
C RECEPTACLES, ANALYZER	180	20A-1P	5	C	6	20A-1P	1200	MCP-730(UV MASTER CONTROL PANEL)	C
C VCP-736 (LEVEL CONTROL PANEL)	600	20A-1P	7	A	8	20A-1P	1800	PN-1014	C
C SPARE		20A-1P	9	B	10	45A-2P	3000	HP-1	C
C COMPOSITE SAMPLE	180	20A-1P	11	C	12		3000		C
C HEAT TRACE	80	20A-1P	13	A	14	20A-1P	720	RECEPT, UV BASIN(4)	C
C SPARE		20A-1P	15	B	16	20A-1P	1100	RECEPT, FOR W3 HEATED ENCLOSURE	C
C SPACE		50A-1P	17	C	18	20A-1P	1100	RECEPT, FOR W3 HEATED ENCLOSURE	C
C SPACE		50A-1P	19	A	20				
C SPARE		20-2P	21	B	22	70A-3P		SPARE	
			23	C	24				

GENERAL NOTES:

- EXISTING CBP-3 IS GE SPECTRA SERIES PANELBOARD LOCATED WITHIN MCC-B.
- FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO NEW WORK. COORDINATE ALL NEW WORK WITH OWNER/ OTHER CONTRACTOR WITH ONGOING PUMP STATION IMPROVEMENTS PROJECT WORK.

KEY NOTES:

- DEMOLISH LOAD. REMOVE CABLES BETWEEN PANELBOARD AND LOAD.
- NEW LOADS.
- PROVIDE NEW BREAKER.
- EXISTING LOADS.

LAST SAVED BY: CGifford

REV	DATE	BY	DESCRIPTION

DESIGNED
VK
DRAWN
DBC
CHECKED
BJT
DATE
OCTOBER 2025



Digitally signed by Tyler D. Troun
Contact Info: Carollo Engineers, Inc.
Date: 2025.10.14 12:04:00 -0700



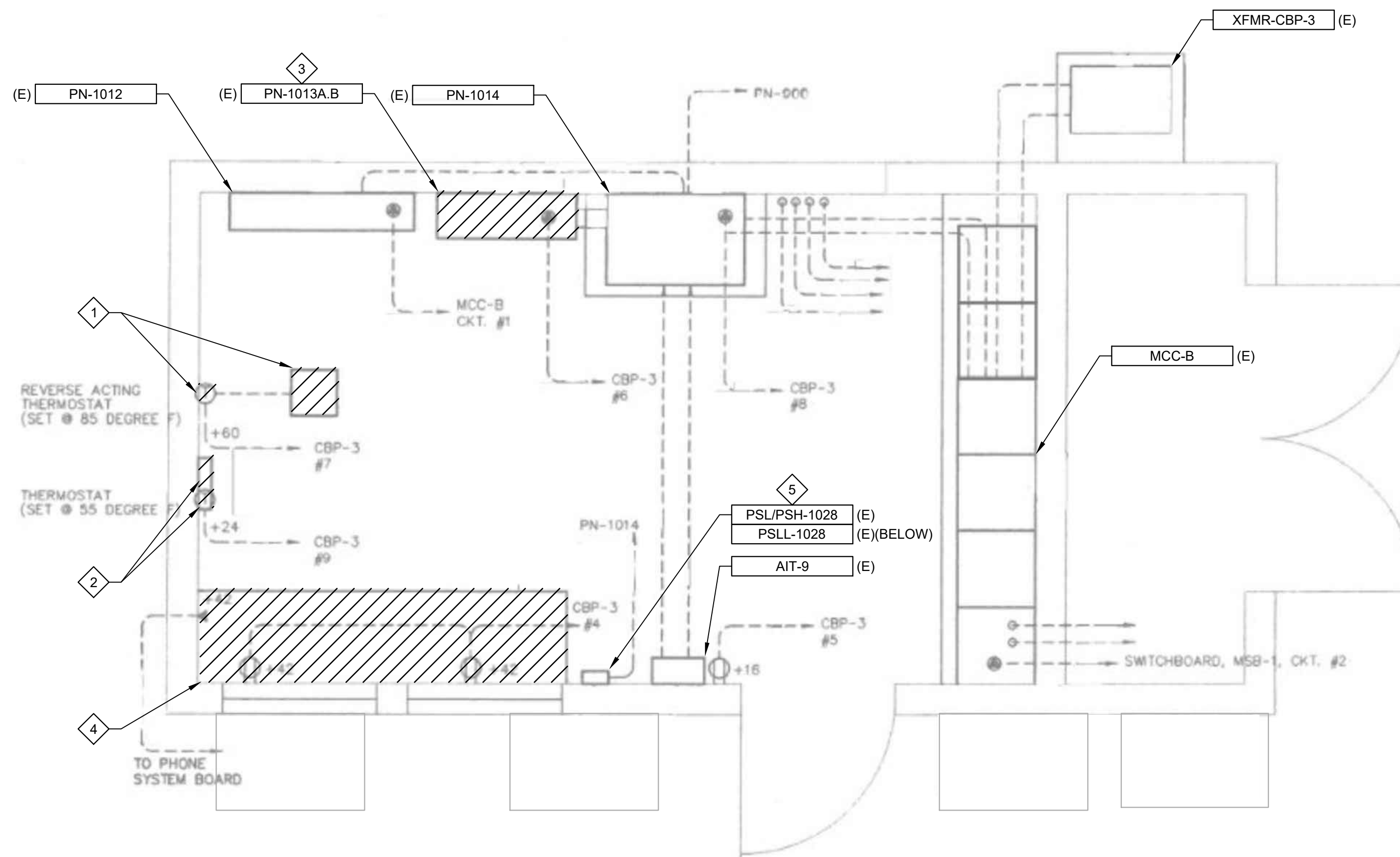
CITY OF SANDY
WWTP UV IMPROVEMENTS
ELECTRICAL
PANELBOARD SCHEDULES

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
202880
DRAWING NO.
E06
SHEET NO.
38 OF 58



GENERAL NOTES:

1. SEE DRAWING E01 FOR LOCATION OF FACILITY ON SITE PLAN.
2. REFER TO DRAWINGS D01 AND D02 FOR ADDITIONAL DEMOLITION REQUIREMENTS.
3. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO NEW WORK. COORDINATE ALL NEW WORK WITH OWNER/ OTHER CONTRACTOR WITH ONGOING PUMP STATION IMPROVEMENTS PROJECT WORK.

KEY NOTES:

1. DEMOLISH THE EXISTING EXHAUST FAN. REMOVE ALL EXISTING CABLES AND EXPOSED CONDUITS RELATED TO THE DEMOLISHED EQUIPMENT.
2. DEMOLISH THE EXISTING HEATER. REMOVE ALL EXISTING CABLES AND EXPOSED CONDUITS RELATED TO THE DEMOLISHED EQUIPMENT.
3. REMOVE ALL EXISTING CABLES AND EXPOSED CONDUITS RELATED TO THE DEMOLISHED EQUIPMENT.
4. REMOVE EXISTING RECEPTACLES. REFER TO DRAWING D05 FOR THE DEMOLITION OF THE EXISTING WORKSTATION TO ACCOMMODATE NEW UV VENDOR PANELS.
5. MOVE THE PSSL AND PSH CLOSER TO THE DOOR TO ACCOMMODATE NEW UV VENDOR PANELS. FIELD VERIFY TO IDENTIFY THE RELOCATED LOCATION. PROVIDE NEW CABLE AND CONDUITS IF NEEDED.

A PLAN

SCALE: NO SCALE
FILE: 202880_10DE9101

G				
	REV	DATE	BY	DESCRIPTION

DESIGNED
VK
DRAWN
MNH
CHECKED
BJT
DATE
OCTOBER 202



Digitally signed by Tyler D. Troup
Contact Info: Carollo Engineers, Inc.
Date: 2025.10.14 12:01:22 -07'00'



CITY OF SANDY

WWTP UV IMPROVEMENTS

ELECTRICAL

ELECTRICAL ROOM PLAN - DEMO

VERIFY SCALES

BAR IS ONE INCH ON
ORIGINAL DRAWING

JOB NO.
000000

202880
DRAWING NC

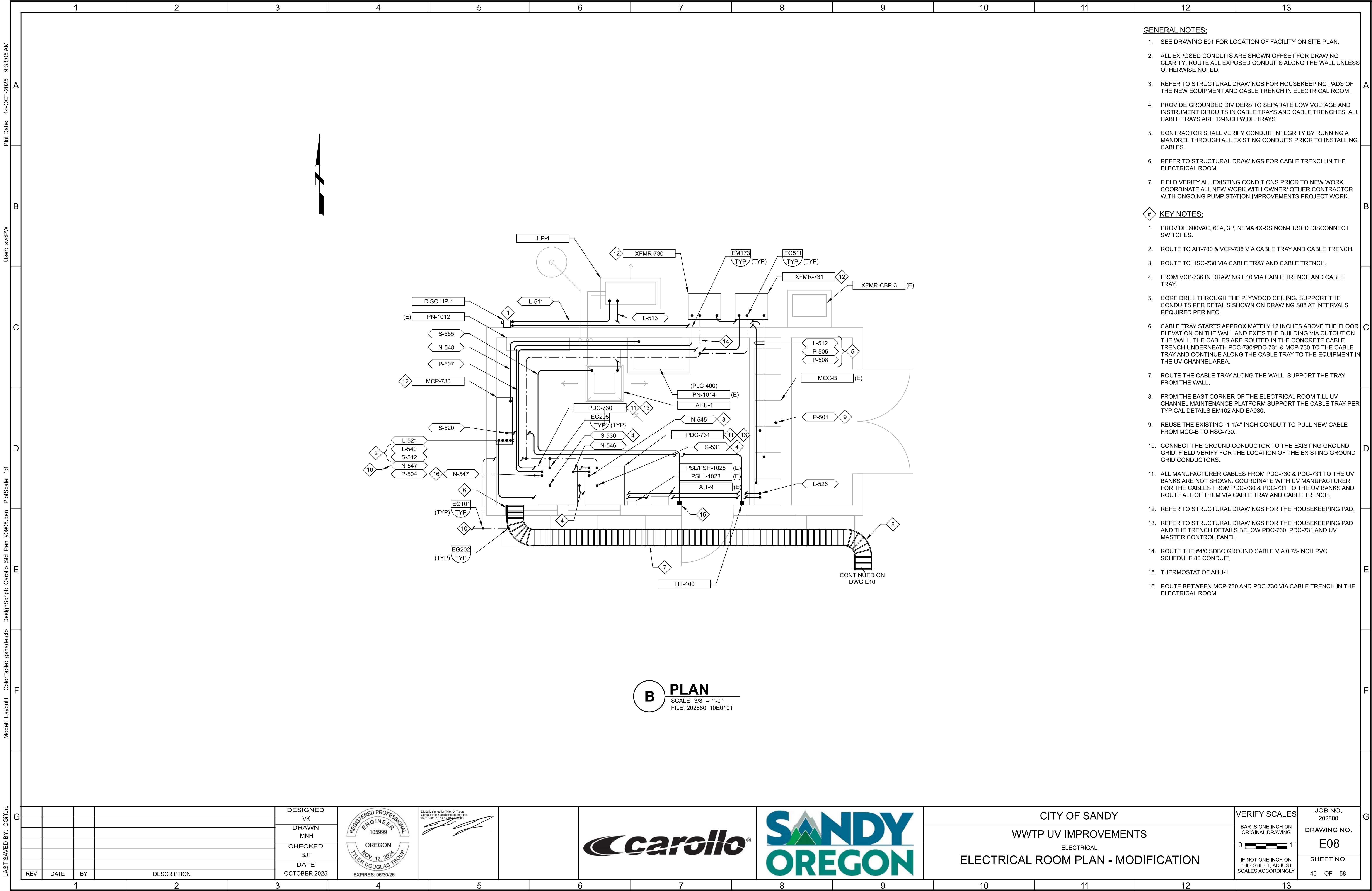
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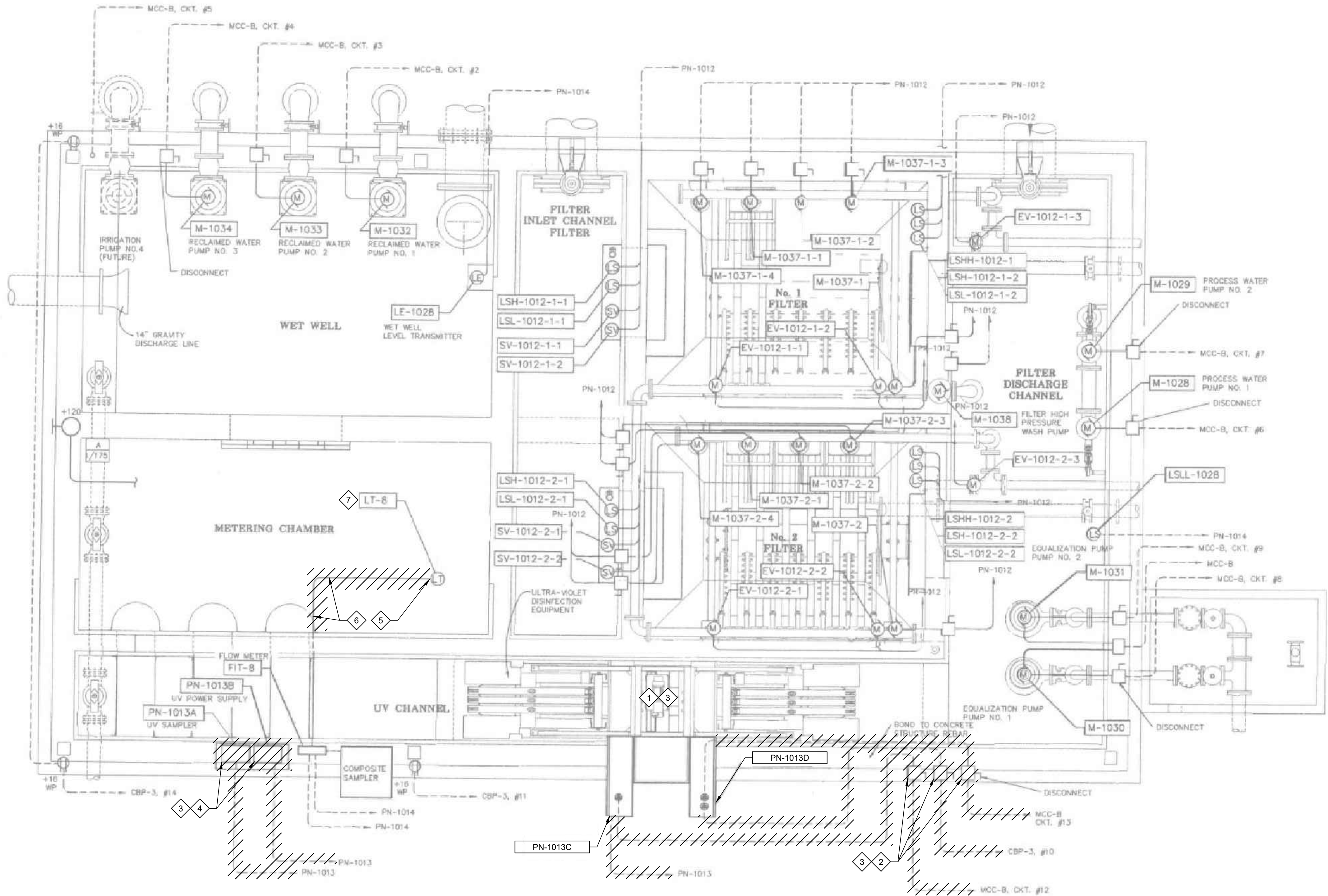
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LAST SAVED BY: Cjifford



A
B
C
D
E
F
G

LAST SAVED BY: CGifford



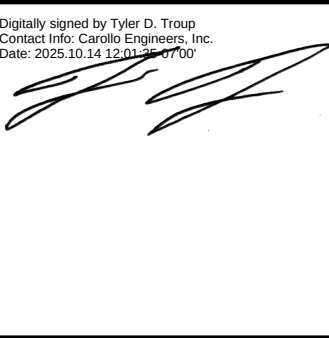
A PLAN
SCALE: NO SCALE
FILE: 202880_15DE9101

- GENERAL NOTES:**
- SEE DRAWING E01 FOR LOCATION OF FACILITY ON SITE PLAN.
 - REFER TO DRAWINGS D01 AND D02 FOR ADDITIONAL DEMOLITION REQUIREMENTS.
- KEY NOTES:**
- REFER TO DRAWINGS D02, DM01, DM02, AND E03 FOR THE DEMOLITION OF THE EXISTING UV EQUIPMENT.
 - DEMOLISH ALL EXISTING DISCONNECT SWITCHES RELATED TO THE EXISTING UV SYSTEMS.
 - REMOVE ALL EXISTING CABLES AND EXPOSED CONDUITS RELATED TO THE DEMOLISHED EQUIPMENT. MANDREL ALL EXISTING CONDUIT RUNS TO VERIFY CLEAR AND CONTINUOUS PATHWAYS PRIOR TO INSTALLATION OF NEW CONDUCTORS.
 - DEMOLISH EXISTING UV POWER SUPPLY AND UV SAMPLER.
 - RELOCATE THE EXISTING LEVEL SENSOR AS SHOWN ON DRAWING E10.
 - REMOVE THE CABLE BETWEEN LT-8 & FIT-8.
 - RELOCATE THE EXISTING LT-8 SUPPORTS TO THE NEW LOCATION TO SUPPORT THE LT-8.

REV	DATE	BY	DESCRIPTION

DESIGNED
VK
DRAWN
MNH
CHECKED
BJT
DATE
OCTOBER 2025

REGISTERED PROFESSIONAL
ENGINEER
105999
OREGON
NOV. 12, 2024
TYLER DOUGLAS TROUP
EXPIRES: 06/30/26



CITY OF SANDY
WWTP UV IMPROVEMENTS
ELECTRICAL
DISINFECTION AREA PLAN - DEMO

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

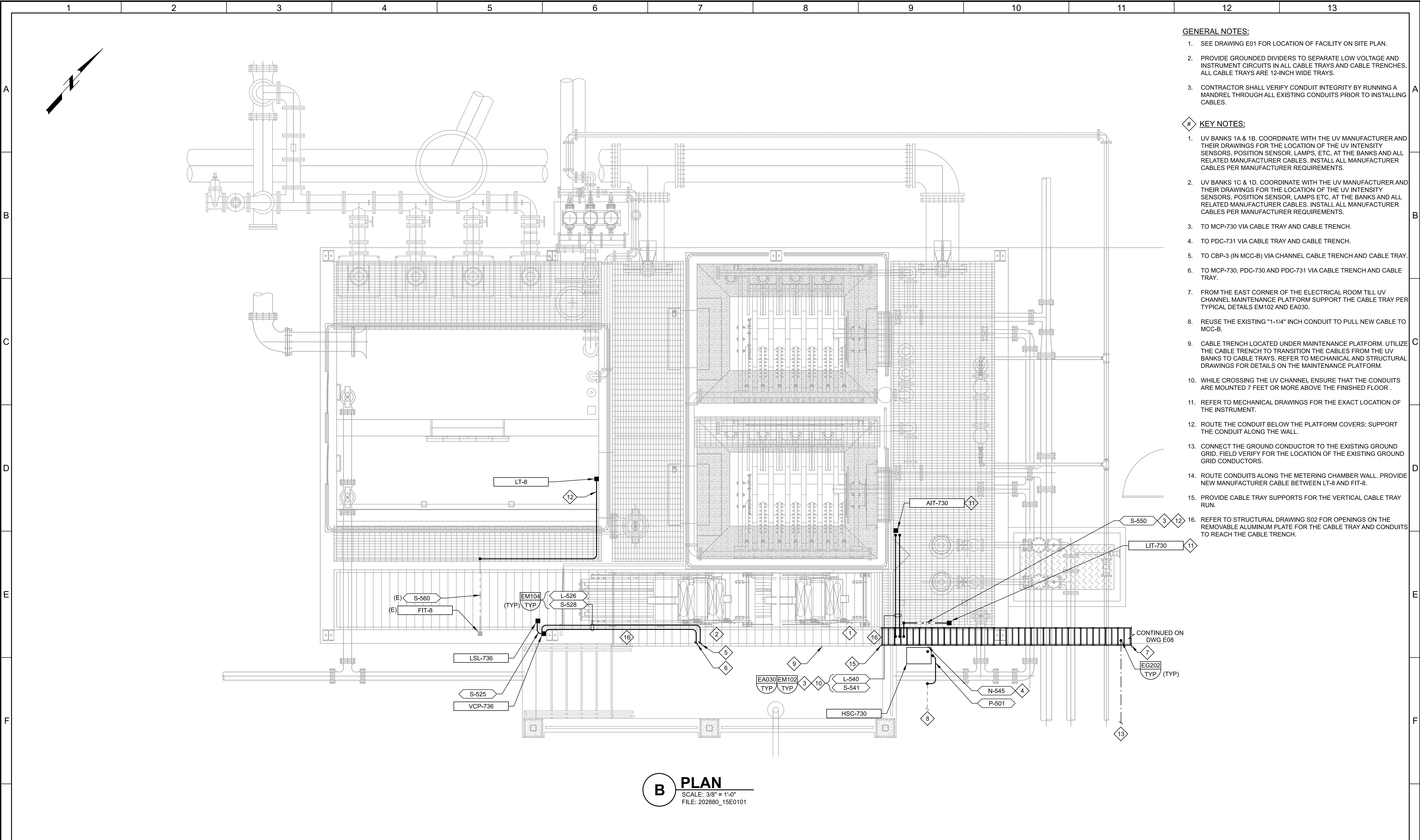
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202880
DRAWING NO.
E09
SHEET NO.
41 OF 58

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LAST SAVED BY: Cjifford



GENERAL NOTES:

1. SEE DRAWING E01 FOR LOCATION OF FACILITY ON SITE PLAN.
2. PROVIDE GROUNDED DIVIDERS TO SEPARATE LOW VOLTAGE AND INSTRUMENT CIRCUITS IN ALL CABLE TRAYS AND CABLE TRENCHES. ALL CABLE TRAYS ARE 12-INCH WIDE TRAYS.
3. CONTRACTOR SHALL VERIFY CONDUIT INTEGRITY BY RUNNING A MANDREL THROUGH ALL EXISTING CONDUITS PRIOR TO INSTALLING CABLES.

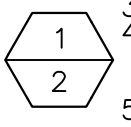
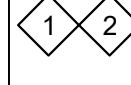
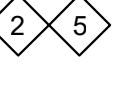
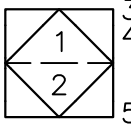
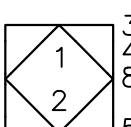
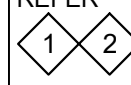
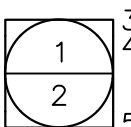
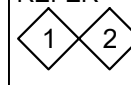
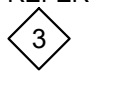
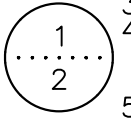
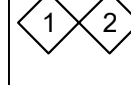
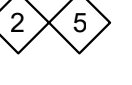
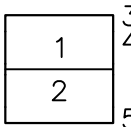
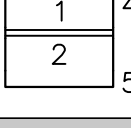
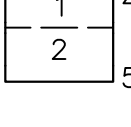
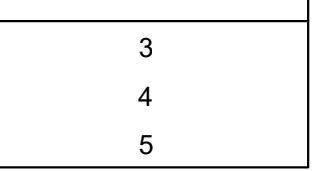
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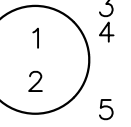
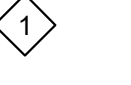
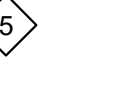
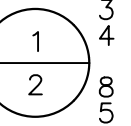
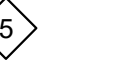
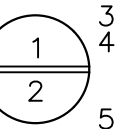
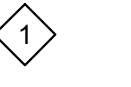
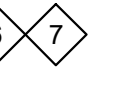
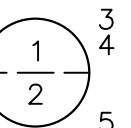
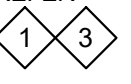
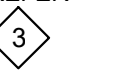
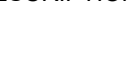
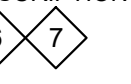
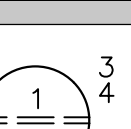
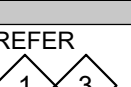
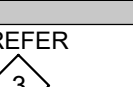
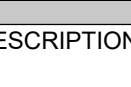
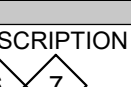
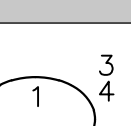
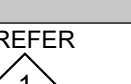
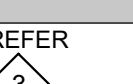
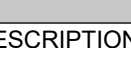
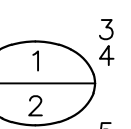
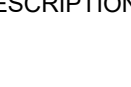
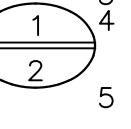
1. UV BANKS 1A & 1B. COORDINATE WITH THE UV MANUFACTURER AND THEIR DRAWINGS FOR THE LOCATION OF THE UV INTENSITY SENSORS, POSITION SENSOR, LAMPS, ETC., AT THE BANKS AND ALL RELATED MANUFACTURER CABLES. INSTALL ALL MANUFACTURER CABLES PER MANUFACTURER REQUIREMENTS.
2. UV BANKS 1C & 1D. COORDINATE WITH THE UV MANUFACTURER AND THEIR DRAWINGS FOR THE LOCATION OF THE UV INTENSITY SENSORS, POSITION SENSOR, LAMPS ETC. AT THE BANKS AND ALL RELATED MANUFACTURER CABLES. INSTALL ALL MANUFACTURER CABLES PER MANUFACTURER REQUIREMENTS.
3. TO MCP-730 VIA CABLE TRAY AND CABLE TRENCH.
4. TO PDC-731 VIA CABLE TRAY AND CABLE TRENCH.
5. TO CBP-3 (IN MCC-B) VIA CHANNEL CABLE TRENCH AND CABLE TRAY.
6. TO MCP-730, PDC-730 AND PDC-731 VIA CABLE TRENCH AND CABLE TRAY.
7. FROM THE EAST CORNER OF THE ELECTRICAL ROOM TILL UV CHANNEL MAINTENANCE PLATFORM SUPPORT THE CABLE TRAY PER TYPICAL DETAILS EM102 AND EA030.
8. REUSE THE EXISTING "1-1/4" INCH CONDUIT TO PULL NEW CABLE TO MCC-B.
9. CABLE TRENCH LOCATED UNDER MAINTENANCE PLATFORM. UTILIZE THE CABLE TRENCH TO TRANSITION THE CABLES FROM THE UV BANKS TO CABLE TRAYS. REFER TO MECHANICAL AND STRUCTURAL DRAWINGS FOR DETAILS ON THE MAINTENANCE PLATFORM.
10. WHILE CROSSING THE UV CHANNEL ENSURE THAT THE CONDUITS ARE MOUNTED 7 FEET OR MORE ABOVE THE FINISHED FLOOR .
11. REFER TO MECHANICAL DRAWINGS FOR THE EXACT LOCATION OF THE INSTRUMENT.
12. ROUTE THE CONDUIT BELOW THE PLATFORM COVERS; SUPPORT THE CONDUIT ALONG THE WALL.
13. CONNECT THE GROUND CONDUCTOR TO THE EXISTING GROUND GRID. FIELD VERIFY FOR THE LOCATION OF THE EXISTING GROUND GRID CONDUCTORS.
14. ROUTE CONDUITS ALONG THE METERING CHAMBER WALL. PROVIDE NEW MANUFACTURER CABLE BETWEEN LT-8 AND FIT-8.
15. PROVIDE CABLE TRAY SUPPORTS FOR THE VERTICAL CABLE TRAY RUN.
16. REFER TO STRUCTURAL DRAWING S02 FOR OPENINGS ON THE REMOVABLE ALUMINUM PLATE FOR THE CABLE TRAY AND CONDUITS TO REACH THE CABLE TRENCH.

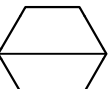
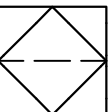
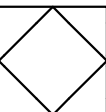
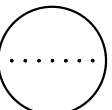
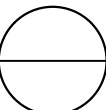
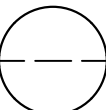
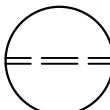
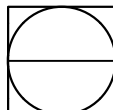
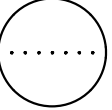
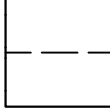
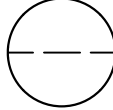
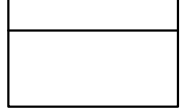
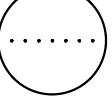
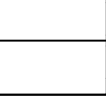
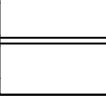
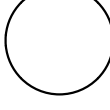
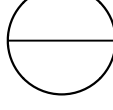
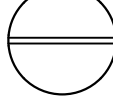
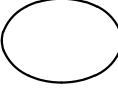
B PLAN
SCALE: 3/8" = 1'-0"
FILE: 202880_15E0101

G					DESIGNED VK					CITY OF SANDY			VERIFY SCALES	JOB NO. 202880	G
					DRAWN QGS					WWTP UV IMPROVEMENTS			BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO.	
					CHECKED BJT					ELECTRICAL			0 1"	E10	
					DATE OCTOBER 2025					EFFLUENT FILTRATION AND DISINFECTION POWER PLAN			IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 42 OF 58	
	REV	DATE	BY		DESCRIPTION										

\$\$\$\$DATE\$\$\$\$
\$\$\$\$USER\$\$\$\$
\$\$\$\$PLOT_INFO\$\$\$\$
LAST SAVED BY: sshepard

1	2	3	4	5	6	7	8	9	10	11	12	13
SYMBOL	DRAWING VISIBLE FIELDS	FIELD - 1	FIELD - 2	FIELD - 3	FIELD - 4	FIELD - 5	FIELD - 6	FIELD - 7	FIELD - 8			
HMI/SCADA SYSTEM OPERATOR INTERFACE TERMINAL 	1 - TAG111 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - DESCRIPTION 6 - EXISTING/FUTURE	REFER 	REFER 	ACTION ALARM SP - NUMERIC STATUS - SET POINT TREND	DESCRIPTION 	DESCRIPTION	E - EXISTING F - FUTURE					
HARDWIRED I/O POINT 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - LOCATION 6 - EXISTING/FUTURE 7 - IO TABLE	REFER 	REFER 	AI - ANALOG INPUT AO - ANALOG OUTPUT DI - DISCRETE INPUT DO - DISCRETE OUTPUT RTD - RTD INPUT	DESCRIPTION PLC - PROGRAMMABLE LOGIC CONTROLLER NO. RIO - REMOTE I/O VCP - VENDOR CONTROL PANEL NO.	PAC - PROGRAMMABLE AUTOMATION CONTROLLER NO. PLC - PROGRAMMABLE LOGIC CONTROLLER NO. RIO - REMOTE I/O VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE					
NETWORK / SOFT I/O 	1 - TAG 2 - LOOP NUMBER 3 - PROTOCOL 4 - PANEL 5 - PLC 6 - EXISTING/FUTURE 7 - IO TABLE 8 - SWITCH/SEGMENT	REFER 	REFER 	COMMUNICATION PROTOCOL CNET - CONTROLNET DNET - DEVICENET EIP - ETHERNET/IP FF - FOUNDATION FIELDBUS HART-IP - HART OVER ETHERNET MANF - MFR. PROPRIETARY MBRTU - MODBUS RTU MB+ - MODBUS PLUS MBTCP - MODBUS TCP DP - PROFIBUS DP PA - PROFIBUS PA PNET - PROFINET SNMP - SNMPv3 HTTP - WEB SERVER (TCP/IP)	DESCRIPTION PLC - PROGRAMMABLE LOGIC CONTROLLER NO. RIO - REMOTE I/O VCP - VENDOR CONTROL PANEL NO.	PAC - PROGRAMMABLE AUTOMATION CONTROLLER NO. PLC - PROGRAMMABLE LOGIC CONTROLLER NO. RIO - REMOTE I/O VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE					
LOCAL OPERATOR INTERFACE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	ACTION ALARM SP - NUMERIC STATUS - SET POINT TREND	DESCRIPTION LOI - LOCAL OPERATOR INTERFACE NO. LCP - LOCAL CONTROL PANEL NO. PCM - PROCESS CONTROL MODULE NO. VCP - VENDOR CONTROL PANEL NO.	LOI - LOCAL OPERATOR INTERFACE NO. LCP - LOCAL CONTROL PANEL NO. PCM - PROCESS CONTROL MODULE NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE					
PILOT DEVICE OPERATOR INTERFACE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - DESCRIPTION 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	AM - AUTO/MANUAL BYPASS - BY PASS ESD - EQUIPMENT SHUTDOWN HOA - HAND/OFF/AUTO LOR - LOCAL/OFF/REMOTE LOS - LOCK OUT STOP LS - LEAD/STANDBY LSR - LOCAL/STOP/REMOTE OC - OPEN/CLOSE OO - OFF/ON OSC - OPEN/STOP/CLOSE RST - RESET SEL - SELECT SPD - SPEED SS - START/STOP ST - STOP	DESCRIPTION 	LCP - LOCAL CONTROL PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. RVSS - REDUCED VOLTAGE SOLID STARTER NO. VCP - VENDOR CONTROL PANEL NO. VFD - VARIABLE FREQUENCY DRIVE NO.	E - EXISTING F - FUTURE					
POWER DEVICE PRIMARY FUNCTION OPERATOR ACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - VOLTAGE-POLE 5 - LOCATION 6 - EXISTING/FUTURE	CB - CIRCUIT BREAKER DISC FU - DISCONNECT - FUSE	REFER 	TM - THERMAL MAGNETIC CIRCUIT BREAKER	24VDC - 1P 24VDC - 2P 24VAC - 1P 48VDC - 2P 120VAC - 1P 208VAC - 2P 208VAC - 3P 240VAC - 2P 240VAC - 3P 480VAC - 3P 2400VAC - 3P 4160VAC - 3P	DP - DISTRIBUTION PANEL NO. LCP - LOCAL CONTROL PANEL NO. LP - LIGHTING PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. PP - POWER PANEL NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE					
POWER DEVICE AUXILIARY FUNCTION OPERATOR ACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - DESCRIPTION 4 - DESCRIPTION 5 - DESCRIPTION 6 - EXISTING/FUTURE	DISC - DISCONNECT	REFER 	DESCRIPTION	DESCRIPTION	DESCRIPTION	E - EXISTING F - FUTURE					
POWER DEVICE PRIMARY FUNCTION OPERATOR INACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - VOLTAGE-POLE 5 - LOCATION 6 - EXISTING/FUTURE	CB - CIRCUIT BREAKER FU - FUSE	REFER 	MCP - MOTOR CIRCUIT PROTECTOR SS - SOLID STATE CIRCUIT BREAKER TM - THERMAL MAGNETIC CIRCUIT BREAKER	24VDC - 1P 24VDC - 2P 24VAC - 1P 48VDC - 2P 120VAC - 1P 208VAC - 2P 208VAC - 3P 240VAC - 2P 240VAC - 3P 480VAC - 3P 2400VAC - 3P 4160VAC - 3P	DP - DISTRIBUTION PANEL NO. LCP - LOCAL CONTROL PANEL NO. LP - LIGHTING PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. PP - POWER PANEL NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE					
FIELD EQUIPMENT STARTER / DRIVE CUBICLE / CABINET 	1 - TAG 2 - LOOP NUMBER 3 - TYPE 4 - VOLTAGE-POLE 5 - POWER SOURCE 6 - EXISTING/FUTURE	MS - MOTOR STARTER RVAT - REDUCED VOLTAGE AUTO TRANSFORMER STARTER RVSS - REDUCED VOLTAGE SOLID STATE STARTER VFD - VARIABLE FREQUENCY DRIVE	REFER 	FVNR - FULL VOLTAGE NON-REVERSING STARTER FVR - FULL VOLTAGE REVERSING STARTER PWS - PART-WINDING STARTER RVAT - REDUCED VOLTAGE AUTO TRANSFORMER STARTER RVSS - REDUCED VOLTAGE SOLID STATE STARTER TS1W - TWO SPEED SINGLE WINDING TS2W - TWO SPEED TWO WINDINGS VFD - VARIABLE FREQUENCY DRIVE	120VAC - 1P 208VAC - 2P 208VAC - 3P 240VAC - 2P 240VAC - 3P 480VAC - 3P 2400VAC - 3P 4160VAC - 3P	LCP - LOCAL CONTROL PANEL NO. MCC - MOTOR CONTROL CENTER NO. PCM - PROCESS CONTROL MODULE NO. VCP - VENDOR CONTROL PANEL NO.	E - EXISTING F - FUTURE					

SYMBOL	DRAWING VISIBLE FIELDS	FIELD - 1	FIELD - 2	FIELD - 3	FIELD - 4	FIELD - 5	FIELD - 6	FIELD - 7	FIELD - 8			
INSTRUMENT PRIMARY ELEMENT 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	AREA NO. BUILDING NO. ROOM NO.	E - EXISTING F - FUTURE					
INSTRUMENT/ CONTROL ELEMENT PRIMARY FUNCTION OPERATOR ACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - DESCRIPTION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	DESCRIPTION INT - INTEGRAL REM - REMOTE	E - EXISTING F - FUTURE		OUT - OUTDOOR			
INSTRUMENT/ CONTROL ELEMENT AUXILIARY FUNCTION OPERATOR ACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	DESCRIPTION	E - EXISTING F - FUTURE					
INSTRUMENT/ CONTROL ELEMENT PRIMARY FUNCTION OPERATOR INACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	DESCRIPTION	E - EXISTING F - FUTURE					
INSTRUMENT/ CONTROL ELEMENT AUXILIARY FUNCTION OPERATOR INACCESSIBLE 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	DESCRIPTION	E - EXISTING F - FUTURE					
FIELD EQUIPMENT NON-POWERED 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION/SIZE 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	AREA NO. BUILDING NO. ROOM NO.	E - EXISTING F - FUTURE					
FIELD EQUIPMENT PRIMARY FUNCTION POWERED 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	REFER 	REFER 	DESCRIPTION 	DESCRIPTION 	AREA NO. BUILDING NO. ROOM NO.	E - EXISTING F - FUTURE					
FIELD EQUIPMENT AUXILIARY FUNCTION POWERED 	1 - TAG 2 - LOOP NUMBER 3 - FUNCTION 4 - FURNISHED BY 5 - LOCATION 6 - EXISTING/FUTURE	MWH - MOTOR WINDING HEATER SWITCH TSH - TEMPERATURE SWITCH XSH - TORQUE SWITCH	REFER 	DESCRIPTION 	DESCRIPTION 	DESCRIPTION	E - EXISTING F - FUTURE					

INSTRUMENT BUBBLE LOCATIONS										NOTES		
PCS											 1	INSTRUMENT TAG IDENTIFICATION LETTERS TABLE
											 2	OPERATOR PILOT DEVICE LEGEND
I/O	 										 3	EQUIPMENT TAGGING TABLE
											 4	I/O TYPE DESIGNATIONS
OPERATOR INTERFACE CONTROL DEVICES	    										 5	INSTRUMENT TYPE DESIGNATIONS TABLE
											 6	FURNISHED BY: FBO FURNISHED BY OWNER FBV FURNISHED BY VENDOR
POWER SOURCE	     										 7	PROVIDED BY: PBO PROVIDED BY OWNER PBV PROVIDED BY VENDOR
FIELD	      											

DESIGNED CE				
DRAWN CE				
CHECKED				
DATE OCTOBER 2025				
REV	DATE	BY	DESCRIPTION	
1			2	
2			3	
3			4	
4			5	



Digitally signed by Monte K. Richard
Contact Info: CarolloEngrns, LLC
Date: 2025.10.11 17:49:00 -0500



CITY OF SANDY
WWTP UV IMPROVEMENTS
INSTRUMENTATION
SYMBOLS AND ABBREVIATIONS 1

VERIFY SCALES	JOB NO. 202880
BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	DRAWING NO. GN01
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 43 OF 58

INSTRUMENT TAG IDENTIFICATION LETTERS													P&ID LINE SYMBOLS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
<table><tr><th colspan="2">INSTRUMENTATION FUNCTION</th><th rowspan="2">ELEMENT</th><th rowspan="2">TRANSMITTER</th><th rowspan="2">INDICATING TRANSMITTER</th><th rowspan="2">CONVERTER TRANSDUCER, RELAY SPECIAL DEVICES</th><th rowspan="2">INDICATOR</th><th rowspan="2">RECORDER</th><th rowspan="2">CONTROL/COMMAND</th><th rowspan="2">INDICATING CONTROLLER</th><th rowspan="2">RECORDING CONTROLLER</th><th rowspan="2">SWITCH</th><th rowspan="2">SWITCH LOW LOW</th><th rowspan="2">SWITCH LOW</th><th rowspan="2">SWITCH HIGH</th><th rowspan="2">SWITCH HIGH HIGH</th><th rowspan="2">SWITCH COMBINATION HIGH LOW</th><th rowspan="2">ACTION</th><th rowspan="2">ALARM LOW LOW</th><th rowspan="2">ALARM LOW</th><th rowspan="2">ALARM HIGH</th><th rowspan="2">ALARM HIGH HIGH</th><th rowspan="2">TOTALIZE INDICATOR TRANSMITTER</th><th rowspan="2">VALVE</th><th rowspan="2">GAUGE</th><th rowspan="2">LIGHT</th><th rowspan="2">SPEED SETTING</th></tr><tr><th colspan="2">MEASURED VARIABLE</th></tr><tr><td>A</td><td>ANALYSIS</td><td>AE</td><td>AT</td><td>AIT</td><td>AY</td><td>AI</td><td>AR</td><td>AC</td><td>AIC</td><td>ARC</td><td>AS</td><td>ASLL</td><td>ASL</td><td>ASH</td><td>ASHH</td><td>ASHL</td><td></td><td>AALL</td><td>AAL</td><td>AAH</td><td>AAHH</td><td></td><td></td><td></td><td>AL</td><td></td></tr><tr><td>C</td><td>CONDUCTIVITY</td><td>CE</td><td>CT</td><td>CIT</td><td>CY</td><td>CI</td><td>CR</td><td>CC</td><td>CIC</td><td>CRC</td><td>CS</td><td>CSLL</td><td>CSL</td><td>CSH</td><td>CSHH</td><td>CSHL</td><td></td><td>CALL</td><td>CAL</td><td>CAH</td><td>CAHH</td><td></td><td></td><td></td><td>CL</td><td></td></tr><tr><td>D</td><td>DENSITY</td><td>DE</td><td>DT</td><td>DIT</td><td>DY</td><td>DI</td><td>DR</td><td>DC</td><td>DIC</td><td>DRC</td><td>DS</td><td>DSLL</td><td>DSL</td><td>DSH</td><td>DSHH</td><td>DSHL</td><td></td><td>DALL</td><td>DAL</td><td>DAH</td><td>DAHH</td><td></td><td></td><td></td><td>DL</td><td></td></tr><tr><td>E</td><td>VOLTAGE</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>ESL</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>F</td><td>FLOW</td><td>FE</td><td>FT</td><td>FIT</td><td>FY</td><td>FI</td><td>FR</td><td>FC</td><td>FIC</td><td>FRC</td><td>FS</td><td>FSLL</td><td>FSL</td><td>FSH</td><td>FSHH</td><td>FSHL</td><td></td><td>FALL</td><td>FAL</td><td>FAH</td><td>FAHH</td><td>FQI</td><td>FCV</td><td>FG</td><td>FL</td><td></td></tr><tr><td>H</td><td>HAND (MANUAL)*</td><td></td><td></td><td></td><td></td><td></td><td></td><td>HC</td><td></td><td></td><td>HS*</td><td></td><td></td><td></td><td></td><td></td><td>HA*</td><td></td><td></td><td></td><td></td><td>HV</td><td></td><td></td><td>HL</td><td>HSS</td></tr><tr><td>I</td><td>CURRENT</td><td></td><td>IT</td><td>IIT</td><td>IY</td><td>II</td><td>IR</td><td>IC</td><td>IIC</td><td>IRC</td><td>IS</td><td>ISLL</td><td>ISL</td><td>ISH</td><td>ISHH</td><td></td><td></td><td>IALL</td><td>IAL</td><td>IAH</td><td>IAHH</td><td></td><td></td><td></td><td>IL</td><td></td></tr><tr><td>J</td><td>POWER</td><td></td><td></td><td></td><td></td><td>JS</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>K</td><td>TIME</td><td></td><td></td><td></td><td>KY</td><td>KI</td><td>KR</td><td>KC</td><td>KIC</td><td>KRC</td><td>KS</td><td>KSLL</td><td>KSL</td><td>KSH</td><td>KSHH</td><td></td><td></td><td>KALL</td><td>KAL</td><td>KAH</td><td>KAHH</td><td></td><td>KV</td><td></td><td>KL</td><td></td></tr><tr><td>L</td><td>LEVEL</td><td>LE</td><td>LT</td><td>LIT</td><td>LY</td><td>LI</td><td>LR</td><td>LC</td><td>LIC</td><td>LRC</td><td>LS</td><td>LSLL</td><td>LSL</td><td>LSH</td><td>LSHH</td><td>LSHL</td><td></td><td>LALL</td><td>LAL</td><td>LAH</td><td>LAHH</td><td></td><td>LCV</td><td>LG</td><td>LL</td><td></td></tr><tr><td>M</td><td>MOISTURE OR HUMIDITY</td><td>ME</td><td>MT</td><td>MIT</td><td>MY</td><td>MI</td><td>MR</td><td>MC</td><td>MIC</td><td>MRC</td><td>MS</td><td>MSLL</td><td>MSL</td><td>MSH</td><td>MSHH</td><td></td><td></td><td>MALL</td><td>MAL</td><td>MAH</td><td>MAHH</td><td></td><td></td><td></td><td>ML</td><td></td></tr><tr><td>N</td><td>USER'S CHOICE</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>P</td><td>PRESSURE OR VACUUM</td><td>PE</td><td>PT</td><td>PIT</td><td>PY</td><td>PI</td><td>PR</td><td>PC</td><td>PIC</td><td>PRC</td><td>PS</td><td>PSLL</td><td>PSL</td><td>PSH</td><td>PSHH</td><td>PSHL</td><td></td><td>PALL</td><td>PAL</td><td>PAH</td><td>PAHH</td><td></td><td>PCV</td><td></td><td>PL</td><td></td></tr><tr><td>PD</td><td>DIFFERENTIAL PRESSURE</td><td></td><td>PDT</td><td>PDIT</td><td>PDY</td><td>PDI</td><td>PDR</td><td>PDC</td><td>PDIC</td><td>PDRC</td><td>PDS</td><td>PDSLL</td><td>PDSL</td><td>PDSH</td><td>PDSHH</td><td></td><td></td><td>PDALL</td><td>PDAL</td><td>PDAH</td><td>PDAHH</td><td></td><td>PDCV</td><td></td><td>PDL</td><td></td></tr><tr><td>Q</td><td>QUANTITY</td><td>QE</td><td>QT</td><td>QIT</td><td>QY</td><td>QI</td><td>QR</td><td></td><td></td><td></td><td>QS</td><td>QSLL</td><td>QSL</td><td>QSH</td><td>QSHH</td><td></td><td></td><td>QALL</td><td>QAL</td><td>QAH</td><td>QAHH</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>R</td><td>RADIATION</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>S</td><td>SPEED</td><td>SE</td><td>ST</td><td>SIT</td><td>SY</td><td>SI</td><td>SR</td><td>SC</td><td>SIC</td><td>SRC</td><td>SS</td><td>SSLL</td><td>SSL</td><td>SSH</td><td>SSHH</td><td></td><td></td><td>SALL</td><td>SAL</td><td>SAH</td><td>SAHH</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>T</td><td>TEMPERATURE</td><td>TE</td><td>TT</td><td>TIT</td><td>TY</td><td>TI</td><td>TR</td><td>TC</td><td>TIC</td><td>TRC</td><td>TS</td><td>TSLL</td><td>TSL</td><td>TSH</td><td>TSHH</td><td>TSHL</td><td></td><td>TALL</td><td>TAL</td><td>TAH</td><td>TAHH</td><td></td><td>TCV</td><td></td><td>TL</td><td></td></tr><tr><td>TD</td><td>DIFFERENTIAL TEMPERATURE</td><td></td><td>TDT</td><td>TDIT</td><td>TDY</td><td>TDI</td><td>TDR</td><td>TDC</td><td>TDIC</td><td>TDRC</td><td>TDS</td><td>TDSLL</td><td>TDSL</td><td>TDSH</td><td>TDSHH</td><td></td><td></td><td>TDALL</td><td>TDAL</td><td>TDAH</td><td>TDAHH</td><td></td><td>TDCV</td><td></td><td>TDL</td><td></td></tr><tr><td>U</td><td>MULTIVARIABLE</td><td></td><td></td><td></td><td></td><td>UI</td><td>UR</td><td>UC</td><td>UIC</td><td>URC</td><td>US</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>UL</td><td></td></tr><tr><td>V</td><td>VISCOSITY</td><td>VE</td><td>VT</td><td>VIT</td><td>VY</td><td>VI</td><td>VR</td><td>VC</td><td>VIC</td><td>VRC</td><td>VS</td><td>VSLL</td><td>VSL</td><td>VSH</td><td>VSHH</td><td></td><td></td><td>VALL</td><td>VAL</td><td>VAH</td><td>VAHH</td><td></td><td></td><td></td><td>VL</td><td></td></tr><tr><td>W</td><td>WEIGHT</td><td>WE</td><td>WT</td><td>WIT</td><td>WY</td><td>WI</td><td>WR</td><td></td><td></td><td></td><td>WS</td><td>WSLL</td><td>WSL</td><td>WSH</td><td>WSHH</td><td></td><td></td><td>WALL</td><td>WAL</td><td>WAH</td><td>WAHH</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>X</td><td>UNCLASSIFIED</td><td>XE</td><td>XT</td><td>XIT</td><td>XY</td><td>XI</td><td>XR</td><td>XC</td><td>XIC</td><td>XRC</td><td>XS</td><td>XSLL</td><td>XSL</td><td>XSH</td><td>XSHH</td><td></td><td></td><td>XALL</td><td>XAL</td><td>XAH</td><td>XAHH</td><td></td><td>XCV</td><td>XG</td><td>XL</td><td></td></tr><tr><td>XV</td><td>VIBRATION</td><td>XVE</td><td>XVT</td><td></td><td>XVY</td><td>XVI</td><td>XVR</td><td></td><td></td><td></td><td>XVS</td><td></td><td></td><td>XVSH</td><td>XVSHH</td><td></td><td></td><td></td><td></td><td>XVAH</td><td>XVAHH</td><td></td><td></td><td></td><td>XVL</td><td></td></tr><tr><td>Y</td><td>STATUS</td><td></td><td></td><td></td><td></td><td>YI</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>YL</td><td></td></tr><tr><td>Z</td><td>POSITION</td><td>ZE</td><td>ZT</td><td>ZIT</td><td>ZY</td><td>ZI</td><td></td><td>ZC**</td><td></td><td></td><td>ZS**</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>ZV</td><td></td><td></td><td>ZL**</td><td></td></tr></table>													INSTRUMENTATION FUNCTION		ELEMENT	TRANSMITTER	INDICATING TRANSMITTER	CONVERTER TRANSDUCER, RELAY SPECIAL DEVICES	INDICATOR	RECORDER	CONTROL/COMMAND	INDICATING CONTROLLER	RECORDING CONTROLLER	SWITCH	SWITCH LOW LOW	SWITCH LOW	SWITCH HIGH	SWITCH HIGH HIGH	SWITCH COMBINATION HIGH LOW	ACTION	ALARM LOW LOW	ALARM LOW	ALARM HIGH	ALARM HIGH HIGH	TOTALIZE INDICATOR TRANSMITTER	VALVE	GAUGE	LIGHT	SPEED SETTING	MEASURED VARIABLE		A	ANALYSIS	AE	AT	AIT	AY	AI	AR	AC	AIC	ARC	AS	ASLL	ASL	ASH	ASHH	ASHL		AALL	AAL	AAH	AAHH				AL		C	CONDUCTIVITY	CE	CT	CIT	CY	CI	CR	CC	CIC	CRC	CS	CSLL	CSL	CSH	CSHH	CSHL		CALL	CAL	CAH	CAHH				CL		D	DENSITY	DE	DT	DIT	DY	DI	DR	DC	DIC	DRC	DS	DSLL	DSL	DSH	DSHH	DSHL		DALL	DAL	DAH	DAHH				DL		E	VOLTAGE															ESL											F	FLOW	FE	FT	FIT	FY	FI	FR	FC	FIC	FRC	FS	FSLL	FSL	FSH	FSHH	FSHL		FALL	FAL	FAH	FAHH	FQI	FCV	FG	FL		H	HAND (MANUAL)*							HC			HS*						HA*					HV			HL	HSS	I	CURRENT		IT	IIT	IY	II	IR	IC	IIC	IRC	IS	ISLL	ISL	ISH	ISHH			IALL	IAL	IAH	IAHH				IL		J	POWER					JS																					K	TIME				KY	KI	KR	KC	KIC	KRC	KS	KSLL	KSL	KSH	KSHH			KALL	KAL	KAH	KAHH		KV		KL		L	LEVEL	LE	LT	LIT	LY	LI	LR	LC	LIC	LRC	LS	LSLL	LSL	LSH	LSHH	LSHL		LALL	LAL	LAH	LAHH		LCV	LG	LL		M	MOISTURE OR HUMIDITY	ME	MT	MIT	MY	MI	MR	MC	MIC	MRC	MS	MSLL	MSL	MSH	MSHH			MALL	MAL	MAH	MAHH				ML		N	USER'S CHOICE																										P	PRESSURE OR VACUUM	PE	PT	PIT	PY	PI	PR	PC	PIC	PRC	PS	PSLL	PSL	PSH	PSHH	PSHL		PALL	PAL	PAH	PAHH		PCV		PL		PD	DIFFERENTIAL PRESSURE		PDT	PDIT	PDY	PDI	PDR	PDC	PDIC	PDRC	PDS	PDSLL	PDSL	PDSH	PDSHH			PDALL	PDAL	PDAH	PDAHH		PDCV		PDL		Q	QUANTITY	QE	QT	QIT	QY	QI	QR				QS	QSLL	QSL	QSH	QSHH			QALL	QAL	QAH	QAHH						R	RADIATION																										S	SPEED	SE	ST	SIT	SY	SI	SR	SC	SIC	SRC	SS	SSLL	SSL	SSH	SSHH			SALL	SAL	SAH	SAHH						T	TEMPERATURE	TE	TT	TIT	TY	TI	TR	TC	TIC	TRC	TS	TSLL	TSL	TSH	TSHH	TSHL		TALL	TAL	TAH	TAHH		TCV		TL		TD	DIFFERENTIAL TEMPERATURE		TDT	TDIT	TDY	TDI	TDR	TDC	TDIC	TDRC	TDS	TDSLL	TDSL	TDSH	TDSHH			TDALL	TDAL	TDAH	TDAHH		TDCV		TDL		U	MULTIVARIABLE					UI	UR	UC	UIC	URC	US														UL		V	VISCOSITY	VE	VT	VIT	VY	VI	VR	VC	VIC	VRC	VS	VSLL	VSL	VSH	VSHH			VALL	VAL	VAH	VAHH				VL		W	WEIGHT	WE	WT	WIT	WY	WI	WR				WS	WSLL	WSL	WSH	WSHH			WALL	WAL	WAH	WAHH						X	UNCLASSIFIED	XE	XT	XIT	XY	XI	XR	XC	XIC	XRC	XS	XSLL	XSL	XSH	XSHH			XALL	XAL	XAH	XAHH		XCV	XG	XL		XV	VIBRATION	XVE	XVT		XVY	XVI	XVR				XVS			XVSH	XVSHH					XVAH	XVAHH				XVL		Y	STATUS					YI																			YL		Z	POSITION	ZE	ZT	ZIT	ZY	ZI		ZC**			ZS**											ZV			ZL**		PROCESS LINE SYMBOLS												
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12345678910111213

ACTUATORS

DIAPHRAGM

ELECTRIC HYDRAULIC

ELECTRIC

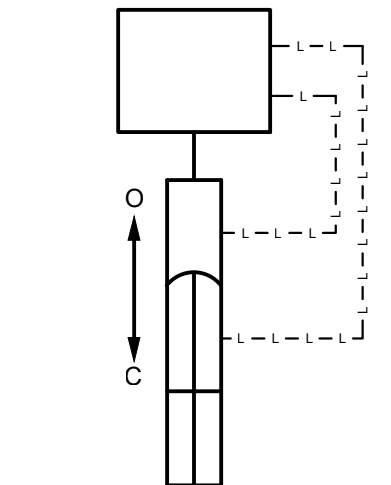
HAND

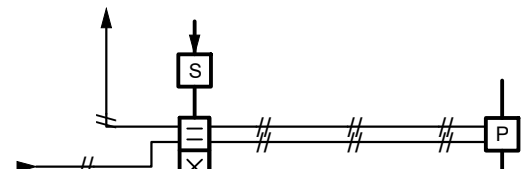
HYDRAULIC

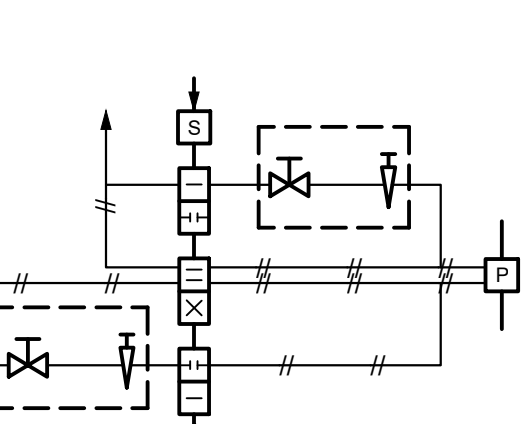
MOTOR

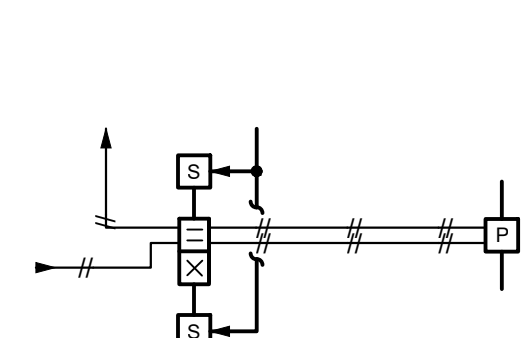
PNEUMATIC

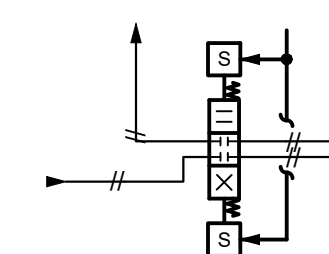
SOLENOID

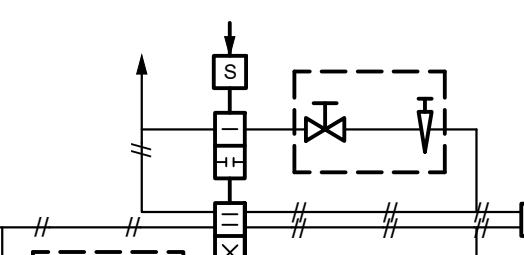
HYDRAULIC MODULATING

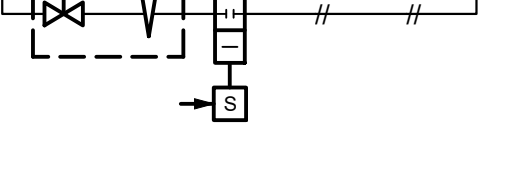
PNEUMATIC SINGLE SOLENOID OPEN/CLOSE

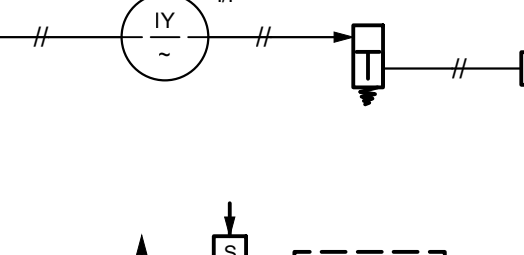
PNEUMATIC SINGLE SOLENOID w/ SPEED CONTROL

PNEUMATIC DUAL SOLENOID OPEN/CLOSE

PNEUMATIC DUAL SOLENOID OPEN/HOLD/CLOSE

PNEUMATIC DUAL SOLENOID OPEN/CLOSE w/ SPEED CONTROL

PNEUMATIC MODULATING

PNEUMATIC MODULATING OPEN/CLOSE w/ SPEED CONTROL

PIPING

AIR GAP

BLIND FLANGE

CAPPED OR PLUGGED

CONCENTRIC INCREASER

CONCENTRIC REDUCER

DRAIN

ECCENTRIC INCREASER

FLANGED CONNECTION

TEE

UNION

ECCENTRIC REDUCER

EXPANSION COUPLING

EXPANSION JOINT VIBRATION CENTER

FLEXIBLE CONNECTION

QUICK DISCONNECT

PUMPS

AIR DRIVEN

CENTRIFUGAL

CHEMICAL FEED DIAPHRAGM

DIAPHRAGM

GEAR

LOBE

PERISTALTIC OR HOSE

PISTON

PROGRESSIVE CAVITY

SUBMERSIBLE

VERTICAL TURBINE

VERTICAL CHOPPER

WATER CHAMP

BLOWERS/COMPRESSORS/FANS

CENTRIFUGAL SINGLE STAGE BLOWER/FAN

CENTRIFUGAL MULTI STAGE BLOWER

RECIPROCATING COMPRESSOR

SCREW COMPRESSOR

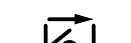
FAN

LIQUID RING COMPRESSOR

ROTARY LOBE BLOWER

CHECK VALVES

BACK FLOW PREVENTER

BALL

DIAPHRAGM CHECK

DOUBLE FLAP

FLAPPER

SLANTING CHECK VALVE

SPRING LOADED GENERAL

SPRING LOADED SWING

SWING

BACKPRESSURE REGULATING SELF CONTAINED

BACKPRESSURE REGULATING EXTERNAL TAP

PRESSURE REDUCING SELF CONTAINED

PRESSURE REDUCING EXTERNAL PRESSURE TAP

REGULATING

PRESSURE RELIEF

VACUUM RELIEF

VALVES

3-WAY

3-WAY PLUG

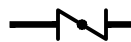
4-WAY

AIR-RELIEF

ANGLE

BALL

BALL V-NOTCH

BUTTERFLY

BUTTERFLY-BURIED VALVE BOX

CONE

DIAPHRAGM

FLOAT

GATE

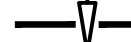
GATE-BURIED VALVE BOX

GLOBE

HOSE

MISCELLANEOUS

MUD

NEEDLE

PINCH

PLUG ECCENTRIC

PLUG ECCENTRIC w-VALVE BOX

PLUG ECCENTRIC LUBRICATED

PLUG ECCENTRIC LUBRICATED BURIED VALVE BOX

PLUG CONCENTRIC

PLUG CONCENTRIC-BURIED VALVE BOX

PLUG CONCENTRIC LUBRICATED

PLUG CONCENTRIC LUBRICATED BURIED VALVE BOX

PUMP DISCHARGE

TELESCOPING

VALVE DESIGNATIONS

NO

NORMALLY OPEN

NC

NORMALLY CLOSED

FO

FAIL OPEN

FC

FAIL CLOSE

FLP

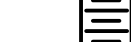
FAIL LAST POSITION

MISC

AIR / CHEMICAL DIFFUSER

BASKET STRAINER

BLOW-OFF SILENCER

CALIBRATION COLUMN

COALESCE

DESICCANT DRYER

EDUCTOR/EJECTOR

EQUIPMENT/INSTRUMENT LOCATOR

EYEWASH

FILTER

FILTER SEPARATOR

FINE FILTER

FIRE ALARM/SENSOR

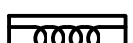
FLAME ARRESTER

FLAME ARRESTER w/THERMALLY OPERATED VALVE

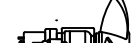
FLOW CONDITIONER

GAS CANNON

GRINDER

HEAT EXCHANGER

HOIST

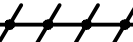
HORIZONTAL MIXER

HOSE CONNECTION

INLET STRAINER

INLINE STATIC MIXER

INLINE DUCT BALANCING DAMPER

LOUVER OR BACKDRAFT DAMPER

MATERIAL CHANGE

MIXER

NOZZLE

ORIFICE RESTRICTION

PERISTALTIC COMPOSITE SAMPLER

PULSATION DAMPENER

REFRIGERATED DRYER

RUPTURE DISK

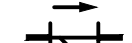
SAMPLE PORT

SIGHT TUBE

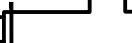
SMOKE DETECTOR

STRAINER - MECHANICALLY CLEANED

STRAINER WITH BLOW OFF

STRAINER WYE TYPE

VAPOR HEATER

VAPORIZER

VENT

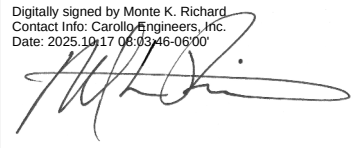
VENT TO ATMOSPHERE

DESIGNED
CE
DRAWN
CE
CHECKED
MKR
DATE
OCTOBER 2025



REGISTERED PROFESSIONAL
ENGINEER
85665
OREGON
JULY 12, 2011
MONTE K. RICHARD
EXPIRES: 12/31/26

Digitally signed by Monte K. Richard
Contact info: carollo@engr.com, LLC
Date: 2025.10.01 17:49:00 -0500







CITY OF SANDY
WWTP UV IMPROVEMENTS
INSTRUMENTATION
SYMBOLS AND ABBREVIATIONS 3

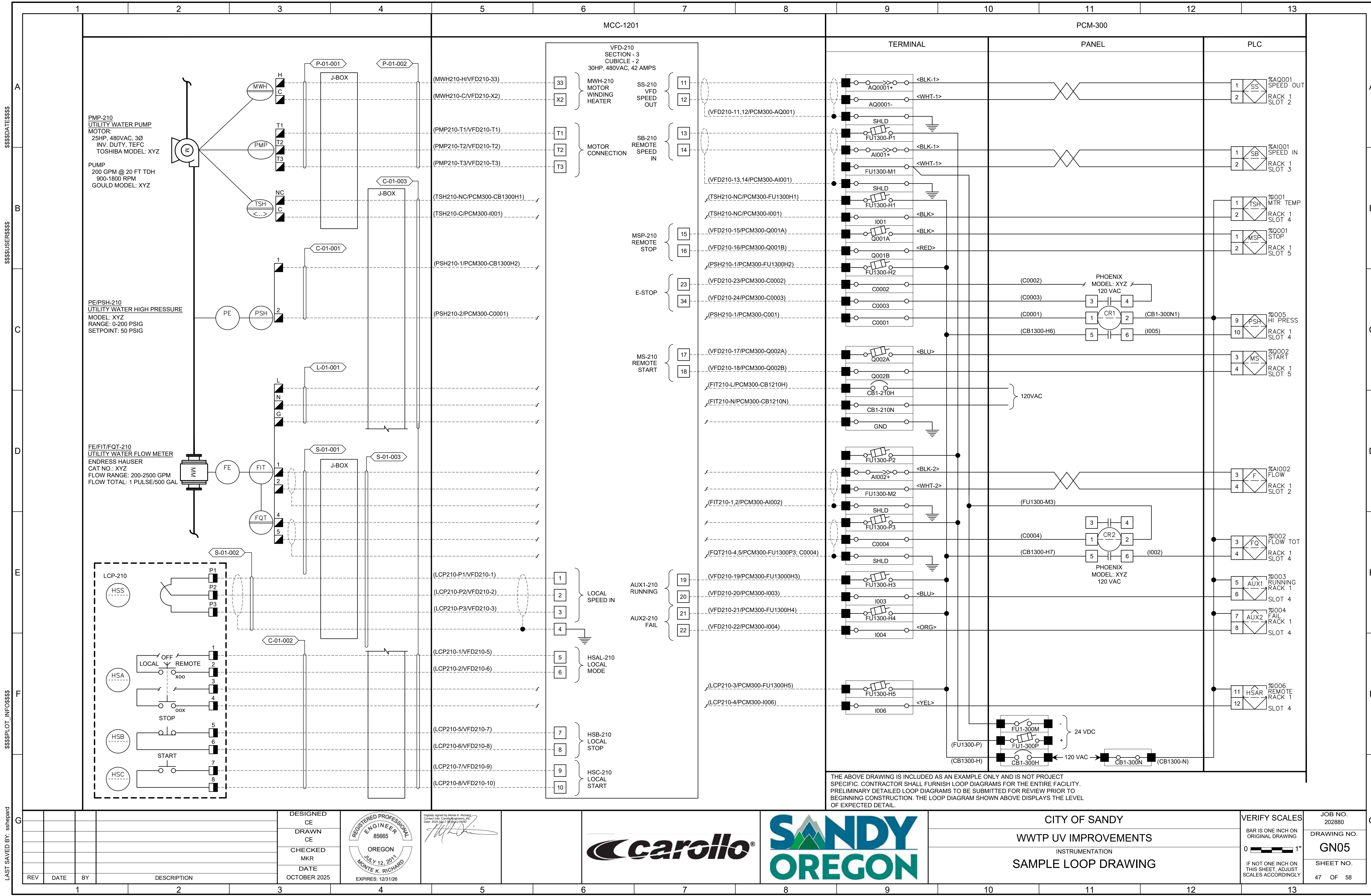
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

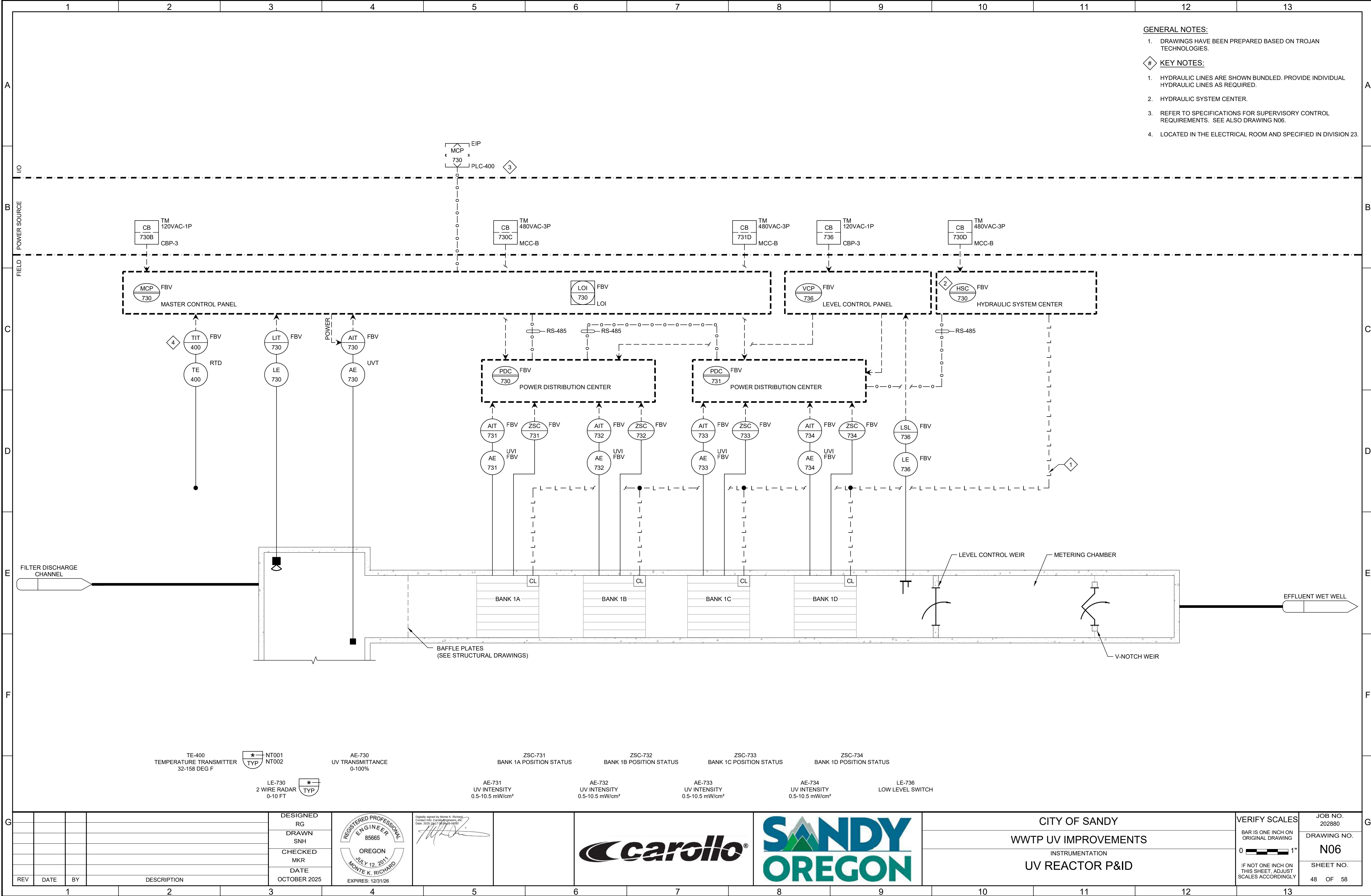
JOB NO.
202880
DRAWING NO.
GN03
SHEET NO.
45 OF 58

12345678910111213

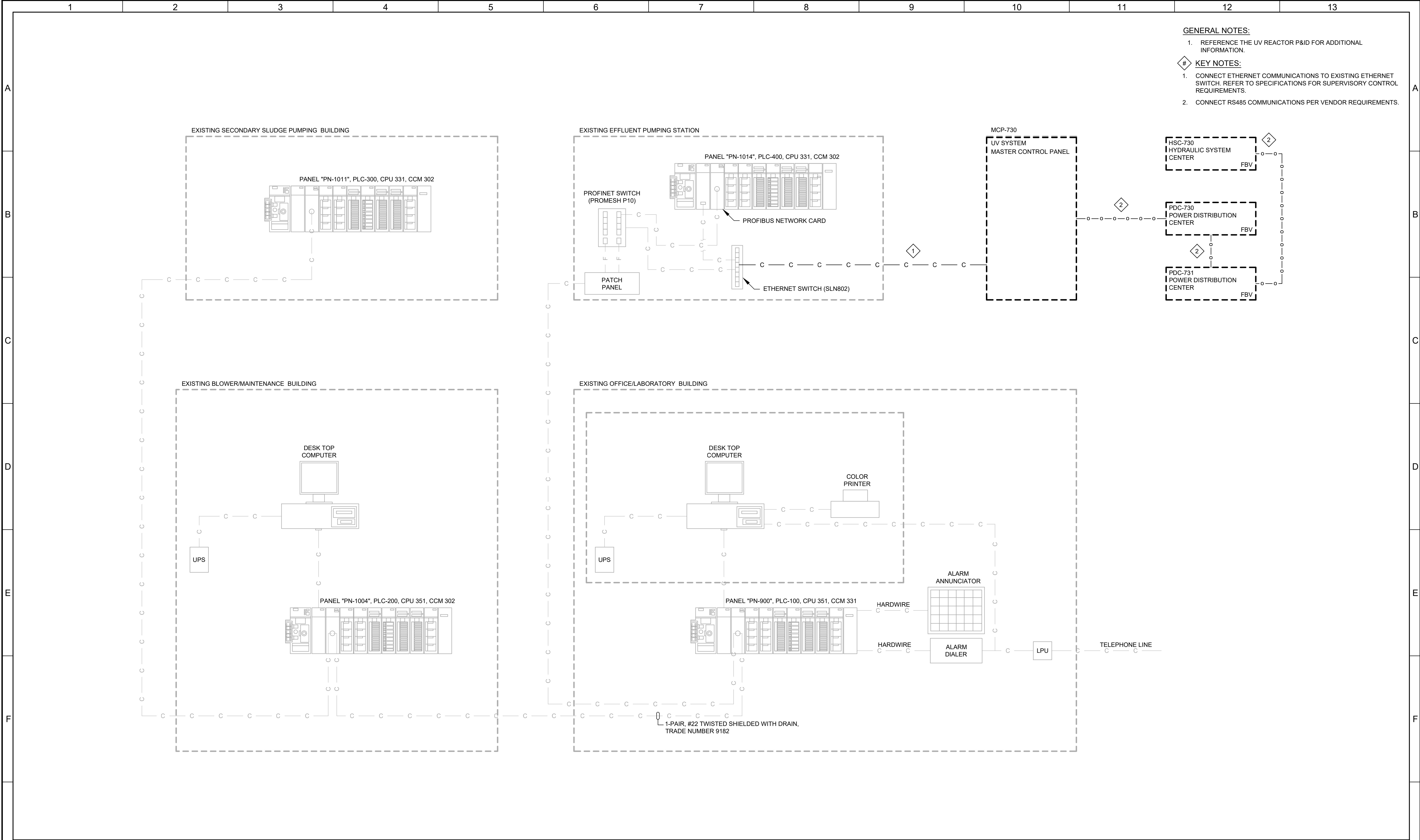
PROJECT NO. 202880-100000 FILE NAME: 202880_GN03.dwg.dwg

A	B	C	D	E	F	G	SYMBOLS AND ABBREVIATIONS 4												
							CABLE CALLOUTS AND ABBREVIATIONS												
							FIBER ABBREVIATIONS ##/FO-XX ## = STRAND COUNT FO = FIBER OPTIC XX = MODE SM = SINGLE MODE MM = MULTIMODE												
							NETWORK ABBREVIATIONS BMS = BUILDING MANAGEMENT SYSTEM BSN = BUSINESS NETWORK FCN = FIELD CONTROL NETWORK MIN = MAINTENANCE INFORMATION NETWORK PCN = PROCESS CONTROL NETWORK PLCN = PLC NETWORK SCN = SECURITY CONTROL NETWORK PCN-W = WIRELESS PROCESS CONTROL NETWORK NR = NETWORK RACK NP = NETWORK PANEL ES = ETHERNET SWITCH FPP = FIBER PATCH PANEL												
							VLAN SYMBOLS [] = BUSINESS NETWORK [] = SECURITY CONTROL NETWORK [] = BUILDING MANAGEMENT SYSTEM [] = PROCESS CONTROL NETWORK [] = WIRELESS PROCESS CONTROL NETWORK [] = MAINTENANCE INFORMATION NETWORK [] = PLC NETWORK [] = FIELD CONTROL NETWORK												
							PRESSURE/VACUUM												
							TEMPERATURE												
							WEIRS												
							NETWORK LINE SYMBOLS												
							MISCELLANEOUS NETWORK SYMBOLS												
NETWORK CABLE CONTINUATIONS																			
FIELD NETWORK DEVICE																			
NETWORK EQUIPMENT CALLOUT																			
DESIGNED CE DRAWN CE CHECKED MKR DATE OCTOBER 2025																			
REGISTERED PROFESSIONAL ENGINEER 85665 OREGON JULY 12, 2011 MONTE K. RICHARD EXPIRES: 12/31/26																			
DIGITALLY SIGNED BY: MONTE K. RICHARD Contact Info: carollo@carollo.com (503) 261-1100 (FAX) (503) 261-1090																			
carollo																			
SANDY OREGON																			
CITY OF SANDY WWTP UV IMPROVEMENTS INSTRUMENTATION SYMBOLS AND ABBREVIATIONS 4																			
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY																			
JOB NO. 202880 DRAWING NO. GN04 SHEET NO. 46 OF 58																			

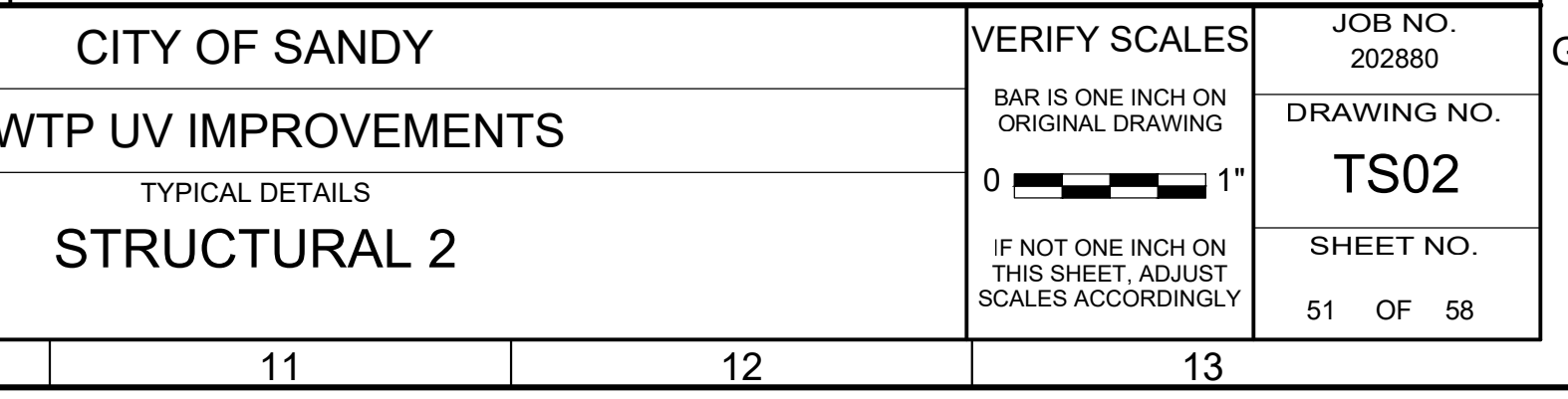
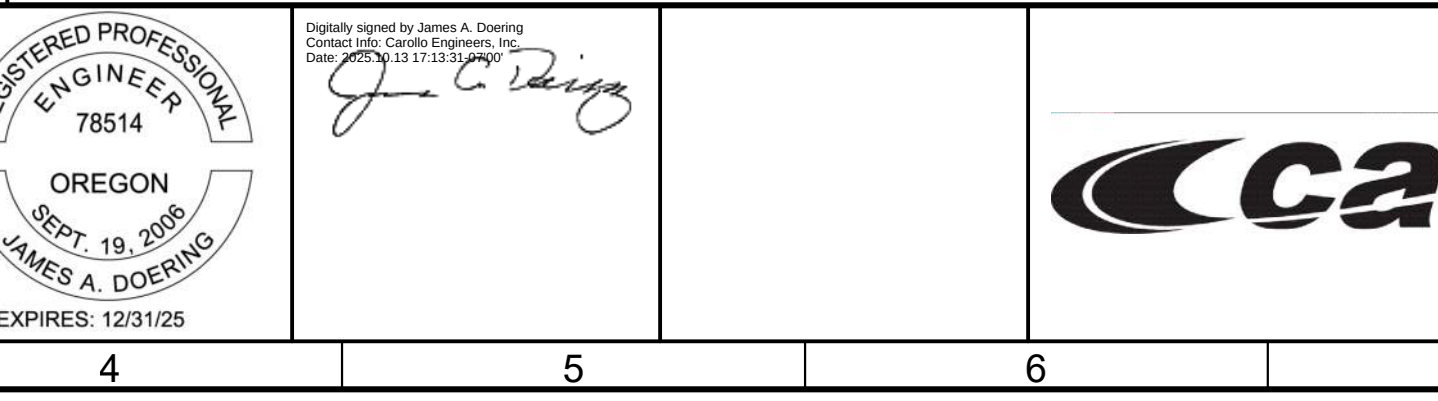
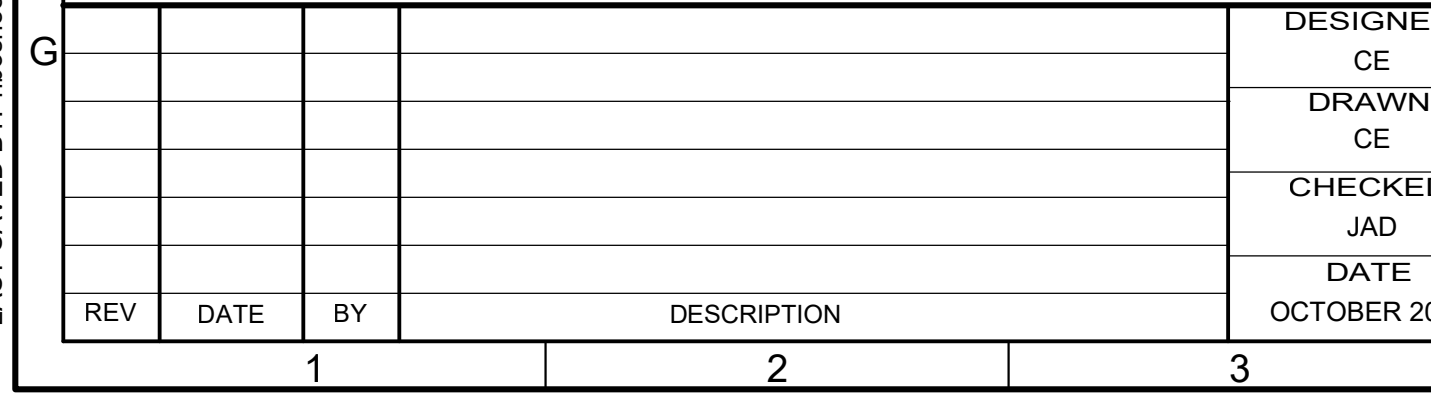




LAST SAVED BY: CROLLINS



REV				DATE	BY	DESCRIPTION	DESIGNED RG	DRAWN DKI	CHECKED MKR	DATE OCTOBER 2025	REGISTERED PROFESSIONAL ENGINEER OREGON JULY 12, 2011 MONTE K. RICHARD EXPIRES: 12/31/26	Digitally signed by Monte K. Richard Contact info: Carollo&Engineers, LLC Date: 2025.10.17 16:59:23 -0500	carollo		SANDY OREGON		CITY OF SANDY WWTP UV IMPROVEMENTS INSTRUMENTATION NETWORK BLOCK DIAGRAM MODIFICATIONS		VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 202880 DRAWING NO. N07 SHEET NO. 49 OF 58
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SHEET 1 OF 3 12/18/2023



- 09/25/2024



JOB NO.
202880

DRAWING NO.
TS04

SHEET NO.
53 OF 58



TYP

12/18/2023



TYP

SHEET 1 OF 2 12/23/24



NOTES:

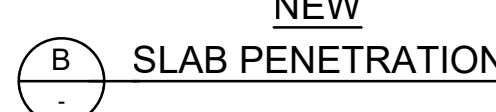
1. REFER TO THE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. THE WIDTH OF THE FOOTING "W" = 2'-6". THE LENGTH OF THE FOOTING = "D" + 2'-0".
3. FOR INSTALLATION ON AN EXISTING CONCRETE FLOOR, VERTICAL #5 BARS SHALL BE EPOXY BONDED WITH MINIMUM EMBED DEPTH OF 6". ROUGHEN EXISTING CONCRETE AND COAT WITH BONDING AGENT AT INTERFACE WITH NEW CONCRETE.

TYP

SHEET 2 OF 2 12/23/24



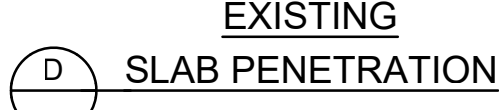
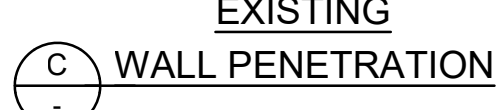
SHEET 1 OF 3 02/09/24



- NOTES:
1. WALLS THICKER THAN 12" INSTALL MODULAR MECHANICAL SEAL AT BOTH ENDS OF WALL SLEEVE.

TYP

SHEET 1 OF 2 07/17/25



- NOTES:**
1. CORE DRILL DIAMETER, PROCEDURES, AND POST-DRILLING SURFACE PREPARATION PER MODULAR MECHANICAL SEAL MANUFACTURER'S RECOMMENDATIONS FOR SPECIFIC PIPE OD.
 2. WALLS 12" OR THICKER INSTALL MODULAR MECHANICAL SEAL AT BOTH ENDS OF PENETRATION.

TYP

SHEET 2 OF 2 07/17/25



TYP

SHEET 2 OF 3 02/09/24



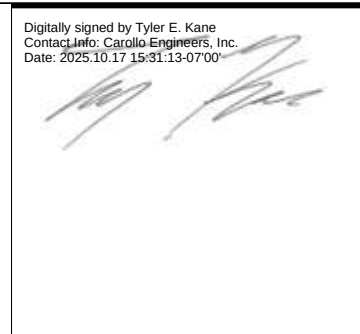
NOTES:

1. FABRICATE SLEEVE FROM 3/8" THICK TYPE 304L THICK STAINLESS STEEL PLATE. WELD JOINTS WITH FULL PENETRATION WELDS.
2. IN WALLS THICKER THAN 12", LINK SEAL SHALL BE INSTALLED AT BOTH ENDS OF WALL SLEEVE. SLEEVE DIAMETER SHALL BE IN ACCORDANCE WITH LINK SEAL MANUFACTURER'S RECOMMENDATION.
3. CUT WALL REINF THAT INTERFERES WITH PIPE SLEEVE. DO NOT CUT OR DAMAGE ANY OTHER BARS.
4. $\star = 0.40$ "S" REINF BAR RADIUS.
5. E 70 ELECTRODE FOR GRADE 40 REINF BARS; E 90 ELECTRODE FOR GRADE 60 REINF BARS.
6. SEE AWS D14 FOR WELDING PROCESS, PREHEAT REQUIREMENTS, AND OTHER DETAILS. SUBMIT WELDING PROCEDURE IN ACCORDANCE WITH AWS. ASSUME 70% CARBON EQUIVALENT.
7. USE FORMING WITH "BIRD'S BEAK" ON BOTH WALL FACES FOR ACCESS FOR VIBRATOR AND TO ALLOW CONCRETE TO BE PLACED UNDER SLIGHT PRESSURE. AFTER FORMS ARE REMOVED, REMOVE PROJECTING CONCRETE AND FINISH TO MATCH FINISH OF EXISTING WALL.
8. WATER CURE REPAIRED CONCRETE FOR MINIMUM OF 7 DAYS. KEEP REPAIRED AREA CONTINUOUSLY WET.

TYP

SHEET 3 OF 3 02/09/24

DESIGNED
CE
DRAWN
CE
CHECKED
TK
DATE
OCTOBER 2025



VERIFY SCALES

BAR IS ONE INCH ON
ORIGINAL DRAWING

0 1"

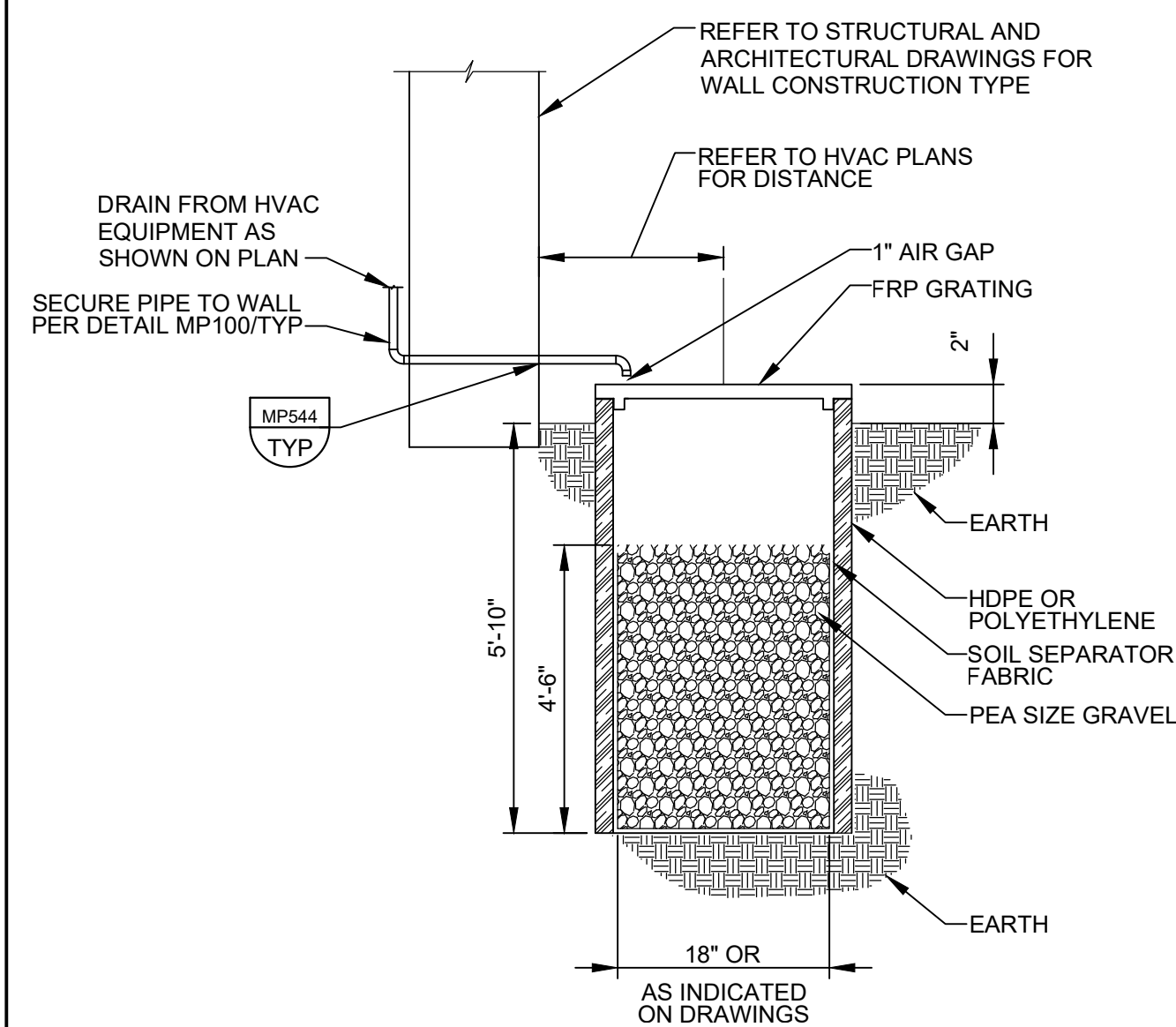
IF NOT ONE INCH ON

JOB NO.
202880

DRAWING NO

TM01

SHEET NO.



C DRYWELL - ABOVE GROUND PIPING



12/18/2023

12/18/2023

HE620 PIPE CONNECTION - AC CONDENSATE

TYP

DESIGNED CE
DRAWN CE
CHECKED TW
DATE OCTOBER 2025



Digitally signed by Chad A. Green
Contact Info: Carollo Engineers, Inc.
Date: 2025.10.20 11:33:18 -0700



JOB NO. 202880
DRAWING NO. TH01
SHEET NO. 56 OF 58



TYP



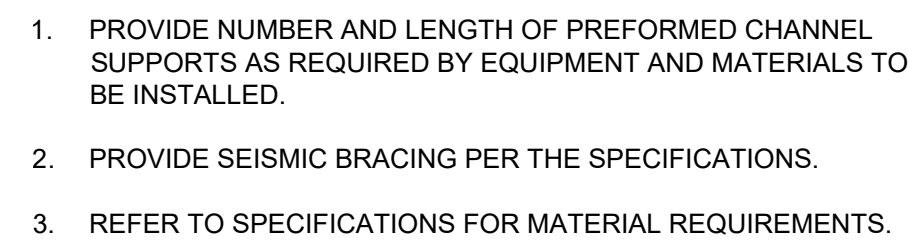
TYP



TYP



TYPE



TYP



TYPE

JOB NO.
202880

DRAWING NO.
TE01

SHEET NO.
57 OF 58



JOB NO.
202880

DRAWING NO.
TE02

SHEET NO.
58 OF 58